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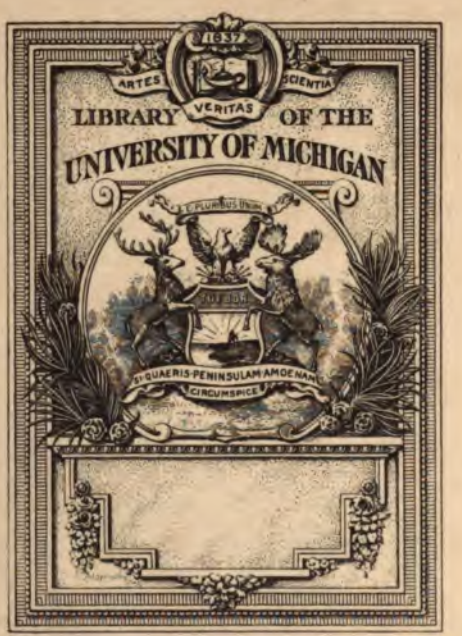
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FOR THE YEAR 1893.

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1891 TARNIER, STÉPHANE, M.D., Professor of Obstetrics, Faculté de Médecine de Paris; 15, Rue Duphot, Paris.

1872 THOMAS, T. GAILLARD, M.D., Professor of Obstetrics in the College of Physicians and Surgeons; 296, Fifth avenue, New York.

1862 VIRCHOW, RUDOLF, M.D., Professor of Pathological Anatomy in the University of Berlin.

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1877 GOODELL, WILLIAM, A.M., M.D., Professor of Gynecology in the University of Pennsylvania; 1418, Spruce street, Philadelphia, Pennsylvania.

1877 STORER, HORATIO R., M.D.,Newport, Rhode Island, U.S.A.

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1884† ADAMS, THOMAS RUTHERFORD, M.D., 119, North End, West Croydon. *Council*, 1894.

1890 ADDINSELL, AUGUSTUS W., M.B., C.M.Edin., 30, Ashburn place, South Kensington, S.W.

1893† ALCOCK, RICHARD, M.B., Burlington crescent, Goole.

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1890† ALLAN, THOMAS S., L.R.C.P. & S.Ed., Salford House, Tonbridge.

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1875 ANDERSON, JOHN FORD, M.D., C.M., 41, Belsize park, N.W. *Council*, 1882.

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1859 ANDREWS, JAMES, M.D., Everleigh, Green hill, Hampstead, N.W. *Council*, 1881.

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1871 ARGLES, FRANK, L.R.C.P.Ed., Hermon Lodge, Wanstead, Essex, E. *Council*, 1886-7.

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1887† Baumgartner, Henry Spelman, M.B. Durh., 1, North street, Saville place, Newcastle-on-Tyne.

1871† Beach, Fletcher, M.B., F.R.C.P., Two Elms, Chislehurst road, Sidcup; and 64, Welbeck street, W. *Council*, 1893-4.

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1877 Bowkett, Thomas Edward, 145, East India road, Poplar, E. *Council*, 1890.

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1877 Carver, Eustace John, 62, Sandringham road, Dalston, N.E.

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1863† Cayzer, Thomas, Mayfield, 9, Aigburth road, Liverpool.

1875† Chaffers, Edward, F.R.C.S., Broomfield, Keighley, Yorkshire.

1876* Champneys, Francis Henry, M.A., M.D. Oxon., F.R.C.P., Physician-Accoucheur to, and Lecturer on Midwifery at, St. Bartholomew's Hospital; 42, Upper Brook street, W. *Council*, 1880-1. *Hon. Lib.* 1882-3. *Hon. Sec.* 1884-7. *Vice-Pres.* 1888-90. *Board Exam. Midwives*, 1883, 1888-90; *Chairman*, 1891-4. *Editor*, 1888-93. *Trans.* 16.

1859 Chance, Edward John, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 14, Russell square, W.C.

1867*†Charles, T. Edmondstoune, M.D., F.R.C.P., 72, Via di San Niccolò da Tolentino, Rome. *Council*, 1882-4.

1874† Charlesworth, James, M.D., Physician to the North Staffordshire Infirmary; 25, Birch terrace, Hanley, Staffordshire.

1886† Charpentier, Ambrose E. L., M.D.Durh., Rathmines House, Uxbridge.

1892† Chepmell, Charles William James, M.D. Brux., 87, Buckingham road, Brighton.

Elected

1868*†Child, Edwin, "Vernham," New Malden, Kingston-on-Thames, Surrey.

1890† Childe, Charles Plumley, B.A., F.R.C.S., Cranleigh, Kent road, Southsea.

1883† Childs, Christopher, M.A., M.D.Oxon., Pendeen, Weymouth. *Hon. Loc. Sec.*

1863*†Chisholm, Edwin, M.D., Abergeldie, Ashfield, near Sydney, New South Wales. [Per Messrs. Turner and Henderson, care of Messrs. W. Dawson, 121, Cannon street, E.C.]

1883 Clapham, Edward, M.D., 29, Lingfield road, Wimbledon. *Council*, 1892-4.

1859 Claremont, Claude Clarke, Millbrook House, 1, Hampstead road, N.W.

1879 Clarke, Reginald, South Lodge, Lee park, Lee, S.E.

1893 Clarke, W. Bruce, F.R.C.S., 46, Harley street, W.

1876† Clay, George Langsford, West View, 443, Moseley road, Highgate, Birmingham.

O.F.† Clay, John, Professor of Midwifery, Queen's College, Birmingham; Allan House, 138, Steelhouse lane, Birmingham. *Council*, 1868-69. *Vice-Pres.* 1872-4.

1889 Clemow, Arthur Henry Weiss, M.D., C.M. Edin., 1, Comeragh road, West Kensington, W.

O.F. Cleveland, William Frederick, M.D., Stuart villa, 199, Maida vale, W. *Council*, 1863-64. *Vice-Pres.* 1875-77, 1887-89. *Trans.* 1.

1881† Close, James Alex., M.B., 2031, Olive street, St. Louis, Missouri, U.S.A.

1865*†Coates, Charles, M.D., Physician to the Bath General and Royal United Hospitals; 10, Circus, Bath.

1882† Coates, Frederick William, M.D. (travelling). *Council*, 1891-93.

1875 Coffin, Richard Jas. Maitland, F.R.C.P. Ed., 98, Earl's Court road, W.

Elected

1878 COFFIN, THOMAS WALKER, 22, Upper Park road, Haverstock hill, N.W.

1875*†COLE, RICHARD BEVERLY, M.D. Jefferson Coll. Philad., 218, Post street, San Francisco, California, U.S.

1888† COLLINS, EDWARD TENISON, 12, Windsor place, Cardiff.

1877 COLMAN, WALTER TAWELL (travelling).

1866† COOMBS, JAMES, M.D., Bedford.

1874 COOPER, HERBERT, L.R.C.P. Ed., Thurlow House, Hampstead, N.W.

1888 COOPER, PETER, L.R.C.P.Lond., Stainton Lodge, 35, Shooter's Hill road, Blackheath, S.E.

1890 COPELAND, WILLIAM HENRY LAURENCE, M.B.Cantab., 59, Warwick road, Earl's Court, S.W.

1888† CORBY, HENRY, B.A., M.D., 19, St. Patrick's place, Cork.

1875*†CORDES, AUG., M.D., M.R.C.P., Consulting Accoucheur to the "Miséricorde;" Privat Docent for Midwifery at the University of Geneva; 12, Rue Bellot, Geneva. *Trans.* 1.

1883 CORNER, CURSHAM, 113, Mile End road, E.

1888† CORNISH, CHARLES NEWTON, L.R.C.P. Ed., 4, Southwick place, Hyde park, W.

1860*†CORRY, THOMAS CHARLES STEUART, M.D., Senior Surgeon to the Belfast General Dispensary; 1, Glenfield place, Ormeau road, Belfast. *Council,* 1867. *Vice-Pres.* 1891-93. *Hon. Loc. Sec.*

1888† CORY, ISAAC RISING, L.R.C.P. Lond., Shere, Guildford.

1875 CORY, ROBERT, M.D., Assistant Obstetric Physician to St. Thomas's Hospital; 73, Lambeth Palace road, S.E. *Council,* 1879-81, 1884-5. *Vice-Pres.* 1887-88. *Trans.* 1.

1886† COX, JOSHUA JOHN, M.D. Ed., St. Ronan's, Clarendon road, Eccles, Manchester.

1869† COX, RICHARD, M.D. St. And., Theale, near Reading. *Trans.* 1.

1893† CRAIG, JAMES, M.D. Edin., Brisgow House, Beckenham.

Elected

1877 Crawford, James, M.D. Durh., Grosvenor Mansions, 80, Victoria street, S.W.

1881† Creasy, James Gideon, West House, Wrotham, Kent.

1876† Crew, John, Manor House, Higham Ferrers, Northamptonshire.

1893 Cripps, William Harrison, F.R.C.S., 2, Stratford place, W.

1889† Croft, Edward Octavius, L.R.C.P. Lond., 8, Clarendon road, Leeds.

1881† Cronk, Herbert George, M.B. Cantab., Repton, near Burton-on-Trent.

1893 Crosby, Herbert Thomas, M.A., M.B., B.C.Cantab., 19, Gordon square, W.C.

1886*†Cross, William Joseph, M.B., Horsham, Victoria, Australia.

1889† Crouch, Edward Thomas, Stoke House, Gosport.

1875* Cullingworth, Charles James, M.D., D.C.L., F.R.C.P., Obstetric Physician to, and Lecturer on Obstetric Medicine at, St. Thomas's Hospital; 46, Brook street, Grosvenor square, W. *Council*, 1883-5, 1891-93. *Vice-Pres.* 1886-8. *Board Exam. Midwives*, 1889-91. *Trans.* 11.

1889*†Cursetji, Jehángir J., M.D. Brux., 94, Chundunwádi, Bombay.

1885 Dakin, W. Radford, M.D., Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital; 57, Welbeck street, Cavendish square, W. *Council*, 1889-91. *Hon. Lib.* 1892-93. *Hon. Sec.* 1894. *Trans.* 3.

1868 Daly, Frederick Henry, M.D., 185, Amhurst road, Hackney Downs, N.E. *Council*, 1877-9. *Vice-Pres.* 1883-5. *Trans.* 2.

1882† Dambrill-Davies, William R., Alderley Edge, Cheshire.

1893 Dauber, John Henry, M.A. Oxon., L.R.C.P. Lond., 20, Davies street, Berkeley square, W.

Elected

1889 DAVIES, FREDERICK HENRY, M.B., C.M.Edin., 40, St. Stephen's avenue, Shepherd's Bush, W.

1876 DAVIES, GOMER, L.R.C.P. Ed., 9, Pembridge villas, Bayswater, W.

1884 DAVIES, JOHN, 91, New North road, N.

1885 DAVIES, WILLIAM MORRISTON, M.D., 55, Gordon square, W.C.

1892† DAVIS, ROBERT, Oakleigh, Epsom.

1877 DAVSON, SMITH HOUSTON, M.D., Campden villa, 203, Maida vale, W. *Council*, 1889-91.

1891 DAWSON, ERNEST, L.R.C.P.Lond., Linden House, High road, Leyton, E.

1889† DAWSON, WILLIAM EDWARD, L.R.C.P.I., Walton-on-Naze, near Colchester.

1880† DAY, WILLIAM HANKES, Surgeon to the City Prisons, Norwich; 3, Surrey street, Norwich. *Trans.* 1.

1859 DAY, WILLIAM HENRY, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester square, W. *Council*, 1873-75. *Vice-Pres.* 1885-6.

1889 DES VŒUX, HAROLD A., M.D.Brux., 4, Ashley gardens, Victoria street, S.W.

1879† DOLAN, THOMAS MICHAEL, M.D., Horton house, Halifax.

1886† DONALD, ARCHIBALD, M.A., M.D. Edin., 274, Oxford road, Manchester. *Council*, 1893-4. *Trans.* 1.

1879* DORAN, ALBAN H. G., F.R.C.S., Surgeon to the Samaritan Free Hospital; 9, Granville place, Portman square, W. *Council*, 1883-5. *Hon. Lib.* 1886-7. *Hon. Sec.* 1888-91. *Vice-Pres.* 1892-94. *Trans.* 13.

1890† DOUTY, EDWARD HENRY, M.A., M.B., B.C. Cantab., 69, Bridge street, Cambridge.

1887 DOVASTON, MILWARD EDMUND.

1893 DOWDING, ALEXANDER WILLIAM WOODMAN, M.D.Durh., Woodland Cottage, New Wanstead, N.E.

Elected

1884† Doyle, E. A. Gaynes, L.R.C.P., Colonial Hospital, Port of Spain, Trinidad.

O.F.† Drage, Charles, M.D., Hatfield, Herts. *Council*, 1861-4. *Trans.* 1.

1885† Drage, Lovell, M.A., M.D., B.S. (Oxon.), Burleigh Mead, Hatfield. *Council*, 1894.

1871† Drake-Brockman, Edward Forster, F.R.C S., L.R.C.P. Lond., Brigade-Surgeon; Superintendent Eye Infirmary, Madras; Professor of Physiology and Ophthalmology, Madras Medical College. [*Per* Messrs. Richardson and Co., East India Army Agency, 25, Suffolk street, Pall Mall, S.W.]

1884 Drake, Charles Henry, 204, Brixton hill, S.W.

1883 Duncan, Alexander George, M.B., 25, Amhurst park, Stamford hill, N.

O.F. Duncan, James, M.B., 8, Henrietta street, Covent garden, W.C. *Council*, 1873-74.

1882 Duncan, William, M.D., Obstetric Physician to, and Lecturer on Obstetric Medicine at, the Middlesex Hospital; 6, Harley street, W. *Council*, 1885-6, 1888-89. *Hon. Lib.* 1890-91. *Hon. Sec.* 1892-94. *Trans.* 2.

1893† Dunn, Philip Henry, L.R.C.P. Lond., Stevenage, Herts.

1871 Eastes, George, M.B., F.R.C.S., 35, Gloucester place, Hyde park, W. *Council*, 1878-80.

1883† Eccles, F. Richard, M.D., Professor of Gynæcology, Western University; 1, Ellwood place, Queen's avenue, London, Ontario, Canada.

1892 Eccles, William McAdam, M.B., B.S.Lond., 10, Welbeck street, Cavendish square, W.

1893 Eden, Thomas Watts, M.D., C.M.Edin., 21, Bentinck street, Cavendish square, W.

1890† Ehrmann, Albert, L.R.C.P.Lond., Bitterne, near Southampton.

Elected

1879† ELDER, GEORGE, M.D., C.M., Surgeon to the Samaritan Hospital for Women, Nottingham; 17, Regent street, Nottingham.

1878† ELLERY, RICHARD, L.R.C.P. Ed., Plympton, Devon.

1873† ENGELMANN, GEORGE JULIUS, A.M., M.D., 3003, Locust street, St. Louis, Missouri, U.S.

1892† EVANS, JOHN MORGAN, L.R.C.P.Lond., Llandrindod Wells, Radnorshire.

1875† EWART, JOHN HENRY, Eastney, Devonshire place, Eastbourne.

1876† FARNCOMBE, RICHARD, 40, Belgrave street, Balsall heath, Birmingham.

1869 FARQUHAR, WILLIAM, M.D., Deputy Surgeon-General, 17, St. Stephen's road, Bayswater, W.

1861 FARR, GEO. F., L.R.C.P. Ed., Slade House, 175, Kennington road, S.E. *Council*, 1885.

1882† FARRAR, JOSEPH, M.D., Gainsborough.

1868* FEGAN, RICHARD, M.D., Westcombe park, Blackheath, S.E.

1893 FERGUSON, GEORGE GUNNIS, M.B., C.M.Glas., 62, Holmdale road, West Hampstead, N.W.

1886 FENNELL, DAVID, L.K.Q.C.P.I., Niton House, 88, High street, Putney, S.W.

1883 FENTON, HUGH, M.D., 27, George street, Hanover square, W.

1893† FINLEY, HARRY, M.D.Lond., Cumberland Infirmary, Carlisle.

1892† FINNY, W. EVELYN ST. LAWRENCE, M.B. Dubl., Kenlis, Queen's road, Kingston hill.

1886† FISHER, FREDERICK BAZLEY, L.R.C.P. Lond., West Walk House, Dorchester.

1882† FITZGERALD, CHARLES EGERTON, M.D., West Terrace, Folkestone.

1877*† FONMARTIN, HENRY DE, M.D., 1, Anchor Gate terrace, Portsea.

Elected

1884† Ford, Alexander, L.R.C.P. Ed., 9, Beresford street, Waterford.

1877*†Ford, James, M.D., Sandford, Crediton, Devon.

1884 Fouracre, Robert Perriman, 20, Tollington park, N.

1886† Fowler, Charles Owen, M.D., Trevor Lodge, Thornton heath.

1875*†Fraser, Angus, M.D., Physician and Lecturer on Clinical Medicine to the Aberdeen Royal Infirmary; 232, Union street, Aberdeen.

1888† Fraser, James Alexander, L.R.C.P. Lond., Western Lodge, Romford.

1867† Freeman, Henry W., 24, Circus, Bath. *Council*, 1891-93.

1883 Fuller, Henry Roxburgh, M.D. Cantab., 45, Curzon street, Mayfair, W. *Council*, 1893. *Trans.* 1.

1886† Furner, Willoughby, F.R.C.S., 2, Brunswick place, West Brighton. *Council*, 1894. *Hon. Loc. Sec.*

1874* Galabin, Alfred Lewis, M.A., M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, Guy's Hospital; 49, Wimpole street, Cavendish square, W. *Council*, 1876-78. *Hon. Lib.* 1879. *Hon. Sec.* 1880-3. *Vice-Pres.* 1884. *Treas.* 1885-8. *Pres.* 1889-90. *Trans.* 12.

1888 Galloway, Arthur Wilton, L.R.C.P. Lond., 79, New North road, N.

1863 Galton, John H., M.D., Chunam, Sylvan road, Upper Norwood, S.E. *Council*, 1874-6, 1891-92.

1881 Gandy, William, Hill Top, Central hill, Norwood, S.E.

1886† Garde, Henry Croker, F.R.C.S. Edin., Maryborough, Queensland.

1887 Gardiner, Bruce H. J., L.R.C.P. Ed., Gloucester House, Barry road, East Dulwich, S.E.

1879† Gardner, John Twiname, Northfield House, Ilfracombe.

1872† Gardner, William, M.A., M.D., Professor of Gynæcology, McGill University; Gynæcologist to the Montreal General Hospital; 109, Union avenue, Montreal, Canada.

Elected

1892† GARDNER, WILLIAM, M.B., C.M.Glas., 5, Collins street, Melbourne.

1876† GARNER, JOHN, 52, New Hall street, Birmingham.

1891† GARRETT, ARTHUR EDWARD, L.R.C.S., & L.M.Ed., The Limes, Rickmansworth.

1873† GARTON, WILLIAM, M.D., F.R.C.S., Inglewood, Aughton, near Ormskirk.

1889* GELL, HENRY WILLINGHAM, M.A., M.B. Oxon., 43, Albion street, Hyde park, W.

1859* GERVIS, HENRY, M.D., F.R.C.P., Consulting Obstetric Physician to St. Thomas's Hospital; 40, Harley street, Cavendish square. *Council*, 1864-66, 1889-91, 1893. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3. *Treas.* 1878-81. *Pres.* 1883-4. *Trans.* 8.

1866* GERVIS, FREDERICK HEUDEBOURCK, 1, Fellows road, Haverstock hill, N.W. *Council*, 1877-9. *Vice-Pres.* 1892. *Trans.* 1.

1884† GIBB, CHARLES JOHN, M.D., Westgate House, Newcastle-on-Tyne.

1875 GIBBINGS, ALFRED THOMAS, M.D., 93, Richmond road, Dalston, N.E. *Council*, 1885-6, 1888.

1883 GIBBONS, ROBERT ALEXANDER, M.D., Physician to the Grosvenor Hospital for Women and Children; 29, Cadogan place, S.W. *Council*, 1889-90. *Trans.* 1.

1874† GIBSON, JAMES EDWARD, Hillside, West Cowes, Isle of Wight.

1892 GILES, ARTHUR EDWARD, M.D. Lond., M.R.C.P., Physician to Out-patients, Chelsea Hospital for Women; 57, Queen Anne street, Cavendish square, W. *Trans.* 3.

1869 GILL, WILLIAM, L.R.C.P. Lond., 11, Russell square, W.C.

1891 GIMBLETT, WILLIAM HENRY, L.R.C.P.I., 34, Pembury road, Clapton, N.E.

1891† GLEDDEN, ALFRED MAITLAND, M.D., c/o L. Bruck, 13, Castlereagh street, Sydney, N.S.W.

Elected

1871 GODDARD, EUGENE, M.D. Durh., North Lynne, 106, Highbury New Park, N. *Trans.* 1.

1871 *GODSON, CLEMENT, M.D., C.M.; 9, Grosvenor street, W. *Council*, 1876-77. *Hon. Sec.* 1878-81. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877, 1882-86. *Trans.* 5.

1893† GOODMAN, ROGER NEVILLE, M.A., M.B.Cantab., Elmside, Kingston-on-Thames.

1893† GORDON, FREDERICK WILLIAM, L.R.C.P.Lond., 6, Theatre street, Norwich.

1883 GORDON, JOHN, M.D., 20, Wickham road, Brockley, S.E.

1869† GOSS, TREGENNA BIDDULPH, 1, The Circus, Bath. *Hon. Loc. Sec.*

1891† GOSTLING, WILLIAM AYTON, M.D., B.S.Lond., Barningham, West Worthing.

1889 GOULLET, CHARLES ARTHUR, L.R.C.P.Lond., 2, Finchley road, N.W.

1890 GOW, WILLIAM JOHN, M.D.Lond., Physician-Accoucheur in charge of Out-patients, St. Mary's Hospital; 27, Weymouth street, W. *Council*, 1893-4.

1893† GOWAN, BOWIE CAMPBELL, L.R.C.P.Lond., Raven Dene, Great Stanmore.

1893 GRANT, LEONARD, M.D.Edin., 9, Western villas, New Southgate, N.

1890† GRAY, HARRY ST. CLAIR, M.D. Glas., 15, Newton terrace, Glasgow.

1875† GRAY, JAMES, M.D., 15, Newton terrace, Glasgow.

1890 GREEN, CHARLES DAVID, M.D.Lond., Addison House, Upper Edmonton.

1894† GREEN, CHARLES ROBERT MORTIMER, The Eden Hospital, Calcutta.

1884† GREENE, WALTER, L.R.C.P. Lond., Wallingford.

1887 GREENWOOD, EDWIN CLIMSON, L.R.C.P., 19, St. John's wood park, N.W.

1863 *GRIFFITH, G. DE GORREQUER, 34, St. George's square, S.W. *Trans.* 2.

Elected

1879* Griffith, Walter Spencer Anderson, M.D. Cantab., F.R.C.S., F.R.C.P., Assistant Physician-Accoucheur to St. Bartholomew's Hospital; 114, Harley street, W. *Council*, 1886-8, 1893-4. *Board Exam. Midwives*, 1887-89. *Trans.* 6.

1870 *Grigg, William Chapman, M.D., Physician to the In-patients, Queen Charlotte's Lying-in Hospital; 27, Curzon street, Mayfair. *Council*, 1875-77. *Board Exam. Midwives*, 1878-79.

1888*†Grimsdale, Thomas Babington, B.A., M.B. Cantab., 50, Rodney street, Liverpool.

1882† Gripper, Walter, M.B. Cantab., The Poplars, Wallington, Surrey.

1880 Grogono, Walter Atkins, Berwick House, Broadway, Stratford, E.

1879† Grove, William Richard, M.D., St. Ives, Huntingdonshire.

1892 Gubb, Alfred Samuel, M.D. Paris, 29, Gower street, W.C.

1887† Hackney, John, M.D. St. And., Oaklands, Hythe.

1881† Hair, James, M.D., Brinklow, Coventry.

1889 Hale, Charles D. B., M.D., 3, Sussex place, Hyde park, W.

1871† Hallowes, Frederick B., Redhill, Reigate, Surrey. *Council*, 1885-6, 1888-90.

1880 Hames, George Henry, F.R.C.S., 29, Hertford street, Park lane, W.

1894 Hamilton, Bruce, L.R.C.P.Lond., 27, Broadhurst Gardens, South Hampstead, N.W.

1887† Hamilton, John, F.R.C.S.Ed., Beechhurst House, Swadlincote, Burton-on-Trent.

1883 Handfield-Jones, Montagu, M.D. Lond., M.R.C.P., Physician-Accoucheur to, and Lecturer on Midwifery and Diseases of Women at, St. Mary's Hospital; 35, Cavendish square, W. *Council*, 1887-89. *Board Exam. Midwives*, 1894. *Trans.* 1.

Elected

1889† HARDWICK, ARTHUR, M.D. Durh., Newquay, Cornwall.

1886† HARDY, HENRY L. P., Holly Lodge, Richmond road, Kingston-on-Thames.

1892 HAROLD, JOHN, L.R.C.P.Lond., 91, Harley street, W.

1889 HARPER, CHARLES JOHN, L.R.C.P. Lond., Church end, Finchley, N.

1877 HARPER, GERALD S., M.B.Aber., 40, Curzon street, Mayfair, W. *Council*, 1894.

1878† HARRIES, THOMAS DAVIES, F.R.C.S., Grosvenor House, Aberystwith, Cardiganshire.

1867* HARRIS, WILLIAM H., M.D., 32, Cambridge gardens, W.

1880* HARRISON, RICHARD CHARLTON, 13, Sandringham gardens, Ealing, W.

1893† HARRISON, SYDNEY NEVILL, M.B., B.C. Cantab., Aveley Court, Stourport.

1890† HART, DAVID BERRY, M.D.Edin., 29, Charlotte square, Edinburgh.

1886† HARTLEY, HORACE, L.R.C.P. Ed., Stone, Staffordshire.

1886† HARTLEY, REGINALD, L.R.C.P. Ed., Kirkgate House, Thirsk.

1893† HARVEY, JOHN JORDAN, L.R.C.P.&S.Edin.

1880 HARVEY, JOHN STEPHENSON SELWYN, M.D.Durh., M.R.C.P., 1, Astwood road, Cromwell road, S.W.

1865† HARVEY, ROBERT, M.D., Abbottabad, Punjab. [Per Messrs. Cochran and Macpherson, 152, Union street, Aberdeen.] *Trans.* 1.

1886 HARVEY, SIDNEY FRED., L.R.C.P.Lond., 117A, Queen's Gate, S.W.

1892† HAWKINS-AMBLER, GEORGE ARTHUR, F.R.C.S.Ed., 162, Upper Parliament street, Liverpool.

1888† HAYCOCK, HENRY EDWARD, L.R.C.P.Ed., Ironville House, Alfreton, Derbyshire.

1893† HAYDON, THOMAS HORATIO, M.B., B.C. Cantab., 22, High street, Marlborough.

Elected

1873 HAYES, THOMAS CRAWFORD, M.A., M.D., F.R.C.P., Obstetric Physician to King's College Hospital, and Lecturer on Practical Midwifery at King's College; 17, Clarges street, Piccadilly, W. *Council*, 1876-78. *Vice-Pres.* 1890-91.

1880 HEATH, WILLIAM LENTON, M.D., 90, Cromwell road, Queen's gate, S.W. *Council*, 1891. *Trans.* 1.

1893 HEELAS, WALTER WHEELER, L.R.C.P.Lond., 2, Clifton Terrace, Chapel Ash, Wolverhampton.

1892† HELLIER, JOHN BENJAMIN, M.D.Lond., Lecturer on Diseases of Women and Children, Yorkshire College; Surgeon to the Hospital for Women and Children, Leeds; 1, De Grey terrace, Leeds.

1890† HELME, T. ARTHUR, M.D.Edin., 258, Oxford road, Manchester.

1867† HEMBROUGH, JOHN WILLIAM, M.D., Earsdon, Newcastle-on-Tyne.

1876* HERMAN, GEORGE ERNEST, M.B., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; 20, Harley street, Cavendish square, W. *Council*, 1878-79. *Hon. Lib.* 1880-1. *Hon. Sec.* 1882-5. *Vice-Pres.* 1886-7. *Board Exam. Midwives*, 1886-88. *Treas.* 1889-92. *Pres.* 1893-4. *Trans.* 27.

1860* HICKS, JOHN BRAXTON, M.D., F.R.C.P., F.R.S., Consulting Obstetric Physician to Guy's and St. Mary's Hospitals; 34, George street, Hanover square. *Council*, 1861-2, 1869. *Hon. Sec.* 1863-65. *Vice-Pres.* 1866-68. *Treas.* 1870. *Pres.* 1871-2. *Trans.* 39.

1892† HILLS, THOMAS HYDE, L.R.C.P.Lond., 60, St. Andrew's street, Cambridge.

1886† HODGES, HERBERT CHAMNEY, L.R.C.P.Lond., Watton, Herts. *Trans.* 1.

O.F. HODGES, RICHARD, M.D., F.R.C.S., 358, Camden road, N. *Trans.* 3.

1886† HOLBERTON, HENRY NELSON, L.R.C.P. Lond., East Molesey.

Elected

1875 Hollings, Edwin, M.D., 25, Endsleigh gardens, N.W. *Council*, 1888-90. *Vice-Pres.* 1893-4.

1859 Holman, Constantine, M.D., 26, Gloucester place, Portman square, W. *Council*, 1867-69. *Vice-Pres.* 1870-71.

1891† Holman, Robert Colgate, Whithorne House, Midhurst, Sussex.

1864* Hood, Wharton Peter, M.D., 11, Seymour street, Portman square, W.

1884 Hopkins, John, L.R.C.P. Ed., 93, Camberwell road, S.E.

1883* Horrocks, Peter, M.D., F.R.C.P. Lond., Assistant Obstetric Physician to, and Demonstrator of Practical Obstetrics at, Guy's Hospital; 26, St. Thomas's street, S.E. *Council*, 1886-7. *Hon. Lib.* 1888-9. *Hon. Sec.* 1890-93. *Vice-Pres.* 1894. *Trans.* 2.

1876 Horsman, Godfrey Charles, 22, King street, Portman square, W.

1893† Hosker, James Atkinson, Kirkleatham, Boscombe, Bournemouth.

1883 Hoskin, Theophilus, L.R.C.P. Lond., 186, Amhurst road, N.E.

1883 Houchin, Edmund King, L.R.C.P. Ed., 23, High street, Stepney, E.

1884† Hough, Charles Henry, Full street, Derby.

1877 Howell, Horace Sydney, M.D., East Grove House, 18, Boundary road, St. John's Wood, N.W.

1893 Hubbard, Henry William, L.R C.P.Lond., 19, Elgin crescent, W.

1879† Hubbard, Thomas Wells, Barming place, Maidstone.

1889† Humphrys, Charles Beyer, L.R.C.P. & S. Edin., Eagle House, Blandford, Dorset.

1884*† Hurry, Jamieson Boyd, M.D. Cantab., 43, Castle street, Reading. *Council*, 1887-9. *Trans.* 2.

1878† Husband, Walter Edward, 56, Bury New road, Manchester.

1883† Inman, Robert Edward, Gadshill Cottage, Higham, Kent.

Elected

1884† Irwin, John Arthur, M.A., M.D., 14, West Twenty-ninth street, New York.

1887 Jackson, G. E. Corrie, F.R.C.S. Ed., 5, Gt. Marlborough street, W.

1883† Jackson, George Henry, St. Levans, Upperton, Eastbourne.

1873† Jakins, William Vosper, L.R.C.P. Ed., 165, Collins street East, Melbourne.

1872† Jalland, Robert, Horncastle, Lincolnshire. *Trans.* 1.

1890† James, Charles Henry, L.R.C.P.Lond., Surg. Indian Army; Lahore, India.

1885† Jamieson, Robert Alexander, M.D., Shanghai. [Per Messrs. Henry S. King and Co., 65, Cornhill, E.C.]

1886 Jamison, Arthur Andrew, M.D. Glas., 18, Lowndes street, S.W.

1883*†Jenkins, Edward Johnstone, M.D. Oxon., Australian Club, Sydney.

1877† Jenks, Edward W., M.D., 84, Lafayette avenue, Detroit. Michigan, U.S.

1882 Jennings, Charles Egerton, M.D. Durh., F.R.C.S. Eng., Assistant Surgeon to the North-West London Hospital; 48, Seymour street, Portman square, W.

1883† Johnson, Arthur Jukes, M.B., 52, Bloor street West, Toronto, Ontario, Canada.

1877† Johnson, Samuel, M.D., 5, Hill street, Stoke-upon-Trent.

1881 Johnston, Joseph, M.D., 24, St. John's Wood park, N.W. *Council*, 1891-92.

1879 Johnston, Wm. Beech, M.D., 157, Jamaica road, Bermondsey, S.E.

1868† Jones, Evan, Ty-Mawr, Aberdare, Glamorganshire. *Council*, 1886-8. *Vice.-Pres.* 1890-91. *Hon. Loc. Sec.*

1878 Jones, H. Macnaughton, M.D., F.R.C.S.I. and Edin., 141, Harley street, Cavendish square, W.

Elected

1881† JONES, JAMES ROBERT, M.B., 171, Donald street, Winnipeg, Manitoba, Canada.

1868 JONES, JOHN, 60, King street, Regent street, W.

1887† JONES, J. TALFOURD, M.B. Lond., Rose Bank, South terrace, Eastbourne.

1886 JONES, LEWIS, M.D., Oakmead, Balham, S.W.

1885† JONES, P. SYDNEY, M.D., 16, College street, Hyde park, Sydney. [Per Messrs. D. Jones and Co., 122 and 124, Wool Exchange, Basinghall street, E.C.]

1873† JONES, PHILIP W., River House, Enfield.

1886† JONES, WILLIAM OWEN, The Downs, Bowdon, Manchester.

1879† JOUBERT, CHARLES HENRY, M.B. Lond., F.R.C.S. Eng., Surgeon-Major, Bengal Medical Department; Obstetric Physician to Eden Hospital, and Professor of Midwifery and Diseases of Women and Children, Calcutta Medical College; 6, Harington street, Calcutta.

1878† JUDSON, THOMAS ROBERT, L.R.C.P. Lond., Hayman's Green, West Derby, Liverpool.

1875† JUKES, AUGUSTUS, M.B., N. W. Mounted Police, Regina, N.-W. Territory, Canada.

1878† KANE, NATHANIEL H. K., M.D., Lanherne, Kingston hill, Surrey.

1890† KANTHACK, ALFREDO ANTUNES, M.D. Lond., St. Bartholomew's Hospital, E.C.

1884 KEATES, WILLIAM COOPER, L.R.C.P., 2, Tredegar villas, East Dulwich road, S.E.

1880† KEBBELL, ALFRED, Flaxton, York.

O.F. KEELE, GEORGE THOMAS, 81, St. Paul's road, Highbury, N. *Council*, 1885.

1883† KEELING, JAMES HURD, M.D., 267, Glossop road, Sheffield. *Hon. Loc. Sec.*

1890 KEITH, SKENE, M.B., C.M.Edin., 42, Charles street, Berkeley Square, W.

Elected

1894 KELLETT, ALFRED FEATHERSTONE, M.B., B.C.Cantab., 146, Lewisham road, S.E.

1874* KEMPSTER, WILLIAM HENRY, M.D., Chesterfield, Clapham common, North side, S.W.

1886 KENNEDY, ALFRED EDMUND, L.R.C.P. Ed., Chesterton House, Plaistow, E.

1879 KER, HUGH RICHARD, L.R.C.P.Ed., Tintern, 2, Balham hill, S.W.

1872 KERR, NORMAN S., M.D., F.L.S., 42, Grove road, Regent's park, N.W.

1877*†KERSWILL, JOHN BEDFORD, M.R.C.P. Ed., Fairfield, St. German's, Cornwall.

1878† KHORY, RUSTONJEE NASERWANJEE, M.D., M.R.C.P., Medical Syndic, Bombay University; Honorary Physician, Bai Motlibai Obstetric and Gynæcological Hospital; Hormazd Villa, Khumballa hill, Bombay.

O.F. KIALLMARK, HENRY WALTER, 5, Pembridge gardens, Bayswater. *Council*, 1879-80.

1892† KINGSCOTE, ERNEST, M.B., C.M.Edin., The Hall, Salisbury.

1892† KINSEY-MORGAN, AUGUSTUS, 1, Stanhope gardens, Bournemouth.

1872* KISCH, ALBERT, 186, Sutherland avenue, W.

1876† KNOTT, CHARLES, M.R.C.P. Ed., Liz Ville, Elm grove, Southsea.

1889 LAKE, GEORGE ROBERT, 72, Gloucester crescent, Hyde park, W.

1867* LANGFORD, CHARLES P., Sunnyside, Hornsey lane, N.

1883 LANGLEY, AARON, L.R.C.P. Ed., 149, Walworth road, S.E.

1886 LANKESTER, HERBERT HENRY, M.D. Lond., 1, Elm park gardens, South Kensington, S.W.

1886† LAUDER, WILLIAM, M.D. Edin., 260, Oxford road, Manchester.

1893† LAVER, HENRY, Head street, Colchester.

1887 LAW, WILLIAM THOMAS, M.D. Edin., 9, Norfolk crescent, W.

Elected

1875† Lawrence, Alfred Edward Aust, M.D., Physician-Accoucheur to the Bristol General Hospital; 19, Richmond hill, Clifton, Bristol. *Council*, 1885-86, 1888. *Vice-Pres.*, 1889-90. *Hon. Loc. Sec. Trans.* 1.

1894 Lea, Arnold W. W., M.D., B.S.Lond., F.R.C.S., 28, Cheyne row, Chelsea, S.W.

1878† Leachman, Albert Warren, M.D., Fairley, Petersfield, Hants.

1884*† Lediard, Henry Ambrose, M.D., 35, Lowther street, Carlisle. *Council*, 1890-92. *Trans.* 1.

1887† Lees, Edwin Leonard, M.D., C.M. Ed., 2, The Avenue, Redland road, Bristol.

1885 Lewers, Arthur H. N., M.D. Lond., M.R.C.P., Obstetric Physician to the London Hospital; 60, Wimpole street, W. *Council*, 1887-89, 1893. *Trans.* 7.

1877† Lewis, John Riggs Miller, M.D., Deputy-Surgeon General Markham Lodge, Liverpool road, Kingston hill, Surrey.

1885† Lidiard, Sydney Robert, L.R.C.P. Ed., Berkeley House, Anlaby road, Hull.

1875† Liebman, Carlo, M.D. Vienna, Principal Surgeon, Trieste Civil Hospital, Trieste, Austria. *Trans.* 1.

1868 Llewellyn, Evan, L.R.C.P. Ed., 114, Bethune road, Stamford hill, N.

1872*† Lock, John Griffith, M.A., 2, Rock terrace, Tenby.

1893† Logan, Roderic Robert Walter, Church street, Ashby-de-la-Zouch.

1859† Lombe, Thomas Robert, M.D., Bemerton, Torquay.

1890 Low, Harold, M.B.Cantab., Round Hill Villa, Sydenham, S.E.

1893† Lowe, Walter George, M.D. Lond., F.R.C.S., Burton-on-Trent.

1890 Lubbock, Edgar Ashley, L.R.C.P.Lond., 4, Westfield terrace, Fulham road, S.W.

1873† Lush, William John Henry, M.D.Brux., Fyfield, near Andover.

Elected

1878*†Lycett, John Allan, M.D., Gatecombe, Wolverhampton.

1871† McCallum, Duncan Campbell, M.D., Emeritus Professor, McGill University; 45, Union avenue, Montreal, Canada. *Trans.* 4.

1890 McCann, Frederick John, M.B., C.M.Edin., M.R.C.P., Physician to Out-patients at the Samaritan Hospital; 22, Bentinck street, Cavendish square, W. *Trans.* 2.

1890 McCaw, John Dysart, F.R.C.S., Ivy House, Lincoln road, East Finchley, N.

1892† Mackay, William John, M.B., M.Ch. Sydney, 36, College street, Hyde Park, Sydney, N.S.W.

1879† Mackeough, George T., M.D., Chatham, Ontario, Canada.

O.F.† Mackinder, Draper, M.D., Consulting Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire. *Council*, 1871-3. *Trans.* 2.

1894† McKisack, Henry Lawrence, M.D.Dubl., 15, College square east, Belfast.

1893 Maclean, Ewen John, M.D., C.M. Edin., 51, Linden gardens, Kensington, W.

1886 McMullen, William, L.K.Q.C.P.I., 319A, Brixton road, S.W.

1893 Macphail, Archibald Lamont, L.F.P.S. & L.M. Glas., 138, Stoke Newington road, N.

1884 Malcolm, John D., M.B., C.M., Surgeon to the Samaritan Free Hospital; 13, Portman street, W. *Council*, 1894.

1871† Malins, Edward, M.D., Obstetric Physician to the General Hospital, Birmingham; 12, Old square, Birmingham. *Council*, 1881-3. *Vice-Pres.* 1884-6. *Hon. Loc. Sec.*

1868*†March, Henry Colley, M.D., 2, West street, Rochdale. *Council*, 1890-92.

1887 Mark, Leonard P., L.R.C.P. Lond., 61, Cambridge street, Hyde-park square, W.

1860† Marley, Henry Frederick, The Nook, Padstow, Cornwall.

Elected

1862*†Marriott, Robert Buchanan, Swaffham, Norfolk.

1887† Marsh, O. E. Bulwer, L.R.C.P. Ed., Parkdale, Clytha park, Newport, Monmouthshire.

1890† Martin, Christopher, M.B., C.M.Edin., 22, Broad street, Birmingham. *Trans.* 1.

1887† Mason, Arthur Henry, L.R.C.P.Lond., Oakwood, Walton-on-Thames.

1884 Massey, Hugh Holland, 3, Peckham road, Camberwell, S.E.

1884 Masters, John Alfred, M.D.Durh., 35, Bruton street, W.

1877 Maunsell, H. Widenham, A.M., M.D., 102, Cromwell road, S.W.

1883 Maurice, Oliver Calley, 75, London street, Reading. *Council*, 1888-90.

1890 May, Chichester Gould, M.A., M.D.Cantab., Assistant Physician to the Grosvenor Hospital for Women and Children; 26, Walton street, Pont street, S.W.

1877 May, Lewis James, Bountis Thorne, Seven Sisters road, Finsbury park, N.

1884† Maynard, Edward Charles, L.R.C.P.Ed., Leslie villa, The Vineyard, Richmond.

1891† Mayner, Alfred Edgar, M.D.Montreal, 87, Hanover street, Kingston, Jamaica.

1885† Meller, Charles Booth, L.R.C.P. Ed., Cowbridge, Glamorganshire.

1886 Mennell, Zebulon, 1, Royal crescent, Notting hill, W.

1882 Meredith, William Appleton, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children; 21, Manchester Square, W. *Council*, 1886-8. *Vice-Pres.* 1891-93. *Trans.* 3.

1893 Mesquita, S. Bueno de, M.D., B.S.Lond., 113, Petherton road, Highbury New park, N.

1893† Michie, Harry, M.B.Aber., 27, Regent street, Nottingham.

Elected

1875*†Miles, Abijah J., M.D., Professor of Diseases of Women and Children in the Cincinnati College of Medicine, Cincinnati, Ohio, U.S.

1876† Millman, Thomas, M.D., 490, Huron street, Toronto, Ontario, Canada.

1880† Mills, Robert James, M.B., M.C., 35, Surrey street, Norwich.

1876 Milson, Richard Henry, M.D., 88, Finchley road, South Hampstead, N.W. *Council*, 1890.

1892† Milton, Herbert M. Nelson, Kasr-el-Aini Hospital, Cairo, Egypt.

1869*†Minns, Pembroke R. J. B., M.D., Thetford, Norfolk.

1867* Mitchell, Robert Nathal, M.D., 27, Fitzjohn's Avenue, N.W.

1893† Montbrun, D. Antonio de, L.R.C.P. Lond., Port of Spain, Trinidad, W.I.

1892† Montbrun, Domingo de, M.D.Caracas, Port of Spain, Trinidad, W.I.

1877 Moon, Frederick, M.B., Bexley house, Greenwich, S.E.

1859† Moorhead, John, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1888 Morison, Alexander, M.D. Ed., Dunnottar, 115, Green lanes, Stoke Newington, N.

1890 Morris, Charles Arthur, M.A., M.B., B.C.Cantab., F.R.C.S., 30, Ebury street, S.W.

1883 Morris, Clarke Kelly, Gordon Lodge, Charlton road, Blackheath, S.E.

1893 Morrison, James, L.R.C.P. Lond., St. Bartholomew's Hospital, E.C.

1893† Morse, Thomas Herbert, F.R.C.S., 10, Upper Surrey street, Norwich.

1891 Mortlock, Charles, L.R.C.P.Lond., 27, Oxford square, Hyde park, W.

1886† Morton, Shadforth, M.D. Durham, 24, Wellesley road, Croydon.

Elected

1879 Moullin, James A. Mansell, M.A., M.B., Assistant Physician to the Hospital for Women and Children, 69, Wimpole street, Cavendish square, W. *Trans.* 1.

1893 Muir, Robert Douglas, L.R.C.P.Lond., 286, New Cross road, S.E.

1885 Murray, Charles Stormont, L.R.C.S. and L.M. Ed., 85, Gloucester place, Portman square, W.

1893† Murray, Robert Milne, M.B. Edin., 10, Hope street, Edinburgh.

O.F. Musgrave, Johnson Thomas, L.R.C.P. Ed., Irlam Villa, 39, Finchley road, N.W. *Council*, 1859-60. *Trans.* 1.

1888 Myddelton-Gavey, Edward Herbert, 94, Wimpole street, W.

1893† Nairne, John Stuart, F.R.C.S. Ed., 12, Royal crescent, Crosshill, Glasgow.

1887 Napier, A. D. Leith, M.D. Aber., M.R.C.P. Lond., F.R.S. Edin., Physician to the Royal Maternity Charity; 67, Grosvenor street, W. *Trans.* 2.

1892† Nash, W. Gifford, F.R.C.S., 36, St. Peter's, Bedford.

1859† Neal, James, M.D., Parterre, Sandown, Isle of Wight.

1882† Nesham, Thomas Cargill, M.D., Lecturer on Midwifery in the University of Durham College of Medicine at Newcastle-on-Tyne; 12, Ellison place, Newcastle-on-Tyne. *Council*, 1889-91.

1859*†Newman, William, M.D., Surgeon to the Stamford and Rutland Infirmary; Barn Hill House, Stamford, Lincolnshire. *Council*, 1873-75. *Vice-Pres.* 1876-77. *Trans.* 5.

1889† Newnham, William Harry Christopher, M.A., M.B.Cantab., 1, Leicester place, Clifton, Bristol.

1893† Nichol, Frank Edward, M.A., M.B., B.C.Cantab., 11, Ethelbert Terrace, Margate.

1873† Nicholson, Arthur, M.B. Lond., 98, Montpellier road, Brighton.

1879† Nicholson, Emilius Rowley, M.D., 19, Cornwallis gardens, Hastings.

Elected

1876 NIX, EDWARD JAMES, M.D., 11, Weymouth street, W. *Council*, 1889-90.

1882† NORMAN, JOHN EDWARD, Lismore House, Hebburn-on-Tyne.

1883† NUNN, PHILIP W. G., L.R.C.P. Lond., Maplestead, Christchurch road, Bournemouth.

1884† OAKES, ARTHUR, M.D., Warialda, Portarlington road, Bournemouth.

1880† OAKLEY, JOHN, Holly House, Ward's end, Halifax, Yorkshire.

1886 OGLE, ARTHUR WESLEY, L.R.C.P. Lond., 90, Cannon street, E.C.

O.F. OLDHAM, HENRY, M.D., F.R.C.P., Consulting Obstetric Physician to Guy's Hospital; 4, Cavendish place, Cavendish square, W. *Vice-Pres.* 1859. *Council*, 1860, 1865-66. *Treas.* 1861-62. *Pres.* 1863-64. *Trans.* 1. *Trustee.*

1888 OLIVER, FRANKLIN HEWITT, L.R.C.P. Lond., 2, Kingsland road, N.E.

1889 OLIVER, JAMES, M.D., F.R.S. Edin., F.L.S., Physician to the Hospital for Women, Soho square; 18, Gordon square, W.C.

1884 OPENSHAW, THOMAS HORROCKS, M.B., M.S., 16, Wimpole street, W.

1890† OSBURN, HAROLD BURGESS, L.R.C.P., Bagshot, Surrey.

1877† OSTERLOH, PAUL RUDOLPH, M.D. Leipzic, Physician for Diseases of Women, Diaconissen Hospital; 16, Sidonienstr., Dresden.

1892 OWEN, SAMUEL WALSHE, L.R.C.P.Lond., 10, Shepherd's Bush road, W.

1889* PAGE, HARRY MARMADUKE, M.D.Brux., F.R.C.S., 107, London wall, E.C.

1891† PAGE, HERBERT MARKANT, M.D.Brux., 16, Prospect hill, Redditch.

Elected

1883 PALMER, JOHN IRWIN, 47, Queen Anne street, Cavendish square, W.

1877* PARAMORE, RICHARD, M.D., 2, Gordon square, W.C.

1867*† PARKS, JOHN, Bank House, Manchester road, Bury, Lancashire.

1887 PARSONS, JOHN INGLIS, M.D.Durh., M.R.C.P., Physician to Out Patients, Chelsea Hospital for Women, 3, Queen street, Mayfair, W. *Trans.* 1.

1880 PARSONS, SIDNEY, 78, Kensington Park road, W.

1889 PARSONS, THOMAS EDWARD, Paddock House, Ridgeway, Wimbledon.

1865*† PATERSON, JAMES, M.D., Hayburn Bank, Partick, Glasgow.

1882* PEACEY, WILLIAM, M.D., 11, Breakspears road, Brockley, S.E.

1864 PEARSON, DAVID RITCHIE, M.D., 23, Upper Phillimore place, Kensington, W.

1871 PEDLER, GEORGE HENRY, 6, Trevor terrace, Rutland gate, S.W.

1880*† PEDLEY, THOMAS FRANKLIN, M.D., Rangoon, India. *Trans.* 1.

1881† PERIGAL, ARTHUR, M.D., New Barnet, Herts. *Council*, 1892–93.

1893 PERKINS, GEORGE C. STEELE, M.B., C.M.Edin., 5, Pinfold road, Streatham, S.W.

1871† PERRIGO, JAMES, M.D., 53, Union avenue, Montreal, Canada. *Hon. Loc. Sec.*

1879*† PESIKAKA, HORMASJI DOSABHAI, 23, Hornby row, Bombay.

1883 PETTIFER, EDMUND HENRY, 32, Stoke Newington green, N.

1879 PHILLIPS, GEORGE RICHARD TURNER, 28, Palace court, Bayswater hill, W. *Council*, 1891.

1882 PHILLIPS, JOHN, M.A., M.D. Cantab., F.R.C.P., Assistant Obstetric Physician to King's College Hospital; 71, Grosvenor street, W. *Council*, 1887-9, 1893. *Hon. Lib.* 1894. *Board Exam. Midwives*, 1892-4. *Trans.* 8.

1891 PHILLIPS, W. E. PICTON, 38, Walsingham House, Piccadilly.

1878 PHILPOT, JOSEPH HENRY, M.D., 61, Chester square, S.W. *Council*, 1891.

Elected

1871* PHILPS, PHILIP GEORGE, 21, Russell road, Kensington, W.

1876 PICARD, P. KIRKPATRICK, M.D., 59, Abbey road, St. John's Wood, N.W.

1889† PINHORN, RICHARD, L.R.C.P. Lond., 5, Cambridge terrace, Dover.

1889† PLAYFAIR, DAVID THOMSON, M.D., C.M. Edin., Redwood House, Bromley, Kent.

1893 PLAYFAIR, HUGH JAMES MOON, M.D. Lond., 9, Cliveden place, Eaton square, S.W.

1864* PLAYFAIR, W. S., M.D., LL.D., F.R.C.P., Physician-Accoucheur to H.I. & R.H. the Duchess of Edinburgh; Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital 31, George street, Hanover square, W. *Council*, 1867. 1883-5. *Hon. Librarian*, 1868-9. *Hon. Sec.* 1870-72. *Vice-Pres.* 1873-5. *Pres.* 1879-80. *Trans.* 15.

1880 POCOCK, FREDERICK ERNEST, M.D., The Limes, St. Mark's road, Notting hill, W.

1883 POCOCK, WALTER, 374, Brixton road, S.W.

1891 POLLOCK, WILLIAM RIVERS, M.B., B.C.Cantab., Assistant Obstetric Physician to the Westminster Hospital, 56, Park street, Grosvenor square, W.

1883 POOK, WILLIAM JOHN, L.R.C.P., 2, Hemingford road, N.

1876 POPE, H. CAMPBELL, M.D., F.R.C.S., Broomsgrove Villa, 280, Goldhawk road, Shepherd's Bush, W.

1891 POPE, HENRY SHARLAND, M.B., B.C.Cantab., 76, Union grove, Clapham, S.W.

1888 POPHAM, ROBERT BROOKS, L.R.C.P.Lond., 67, Bartholomew road, Camden road, N.W.

1882† PORTER, JOSEPH FRANCIS, M.D., Helmsley, Yorkshire.

1864* POTTER, JOHN BAPTISTE, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women at, the Westminster Hospital; 20, George street, Hanover square, W. *Council*, 1872-6, 1890-92. *Hon. Lib.* 1877-8. *Vice-Pres.* 1879-81. *Treas.* 1882-4, 1893-4. *Board Exam. Midwives*, 1883-4. *Pres.* 1885-6. *Trans.* 1.

Elected

1893 Powell, Herbert Edward, Glenarm House, Upper Clapton, N.E.

1884† Powell, John James, L.R.C.P. Lond., Norwood Lodge, Weybridge.

1885† Praeger, Emil Arnold, Nanaimo, British Columbia.

1886 Prangley, Henry John, L.R.C.P. Lond., Tudor House, 197, Anerley road, Anerley, S.E.

1893 Pratt, William Sutton, M.D., 20, Upper Phillimore place, W.

1880* Prickett, Marmaduke, M.A.Cantab., M.D., Physician to the Samaritan Hospital; 12, Devonport street, Gloucester square, W. *Council*, 1892.

O.F.* Priestley, Sir William O., M.D., LL.D., F.R.C.P., Consulting Obstetric Physician to King's College Hospital; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865-66. *Vice-Pres.* 1867-69. *Pres.* 1875-76. *Trans.* 6.

1893 Probyn-Williams, Robert James, M.D.Durh., 9, Woburn square, W.C.

1876*†Quirke, Joseph, L.R.C.P. Ed., The Oaklands, Hunter's road, Handsworth, Birmingham.

1861 Rasch, Adolphus A. F., M.D., Physician for Diseases of Women to the German Hospital; 7, South street, Finsbury square, E.C. *Council*, 1871-3. *Trans.* 6.

1878† Rawlings, John Adams, M.R.C.P.Ed., Preswylfa, Swansea.

1870* Ray, Edward Reynolds, Dulwich, S.E.

1860* Rayner, John, M.D., Swaledale House, Highbury quadrant, N.

1879 Read, Thomas Laurence, 11, Petersham terrace, Queen's gate, S.W. *Council*, 1892.

1874 Rees, William, Priory House, 129, Queen's crescent, Haverstock hill, N.W.

1879† Reid, William Loudon, M.D., Professor of Midwifery and Diseases of Women and Children, Anderson's College; Physician to the Glasgow Maternity Hospital; 7, Royal crescent, Glasgow.

Elected

1889 REMFRY, LEONARD, M.A., M.D., B.C. Cantab., Assistant Obstetric Physician to, and Assistant Lecturer on Obstetric Medicine at, St. George's Hospital; 60, Great Cumberland place, Hyde park, W. *Council*, 1894.

1893† RENSHAW, ISRAEL JAMES EDWARD, F.R.C.S.Edin., Gorse Lea, Sale, near Manchester.

1875*†REY, EUGENIO, M.D., 39, Via Cavour, Turin.

1890 REYNOLDS, JOHN, M.D.Brux., 11, Brixton hill, S.W.

1872† RICHARDSON, WILLIAM L., M.D., A.M., Professor of Obstetrics in Harvard University; Physician to the Boston Lying-in Hospital; 225, Commonwealth avenue, Boston, Massachusetts, U.S.

1889† RICHMOND, THOMAS, L.R.C.P. Ed., 2, West garden street Glasgow.

1872† RIGDEN, GEORGE, Surgeon to the Canterbury Dispensary; 60, Burgate street, Canterbury. *Trans.* 1. *Hon. Loc. Sec.*

1871* RIGDEN, WALTER, M.D. St. And., 16, Thurloe place, S.W. *Council*, 1882-3. *Trans.* 1.

1892 ROBERTS, CHARLES HUBERT, M.B.Lond., F.R.C.S.Eng., 25, Welbeck street, Cavendish square, W.

O.F.*†ROBERTS, DAVID LLOYD, M.D., F.R.C.P., F.R.S. Edin., Obstetric Physician to the Manchester Royal Infirmary; and Lecturer on Clinical Midwifery and the Diseases of Women in Owens College; 11, St. John street, Deansgate, Manchester. *Council*, 1868-70, 1880-2. *Vice-Pres.* 1871-2. *Trans.* 5.

1867* ROBERTS, DAVID W., M.D., 56, Manchester street, Manchester square, W.

1890† ROBERTS, HUGH JONES, Sea View, Penygroes, R.S.O., N. Wales.

1883 ROBERTS, JOHN CORYTON, L.R.C.P. Ed., 71, Peckham rye, S.E.

1893 ROBERTS, THOMAS, 95, Tredegar road, Bow, E.

Elected

1874 Robertson, William Borwick, M.D., St. Anne's, Thurlow park road, West Dulwich, S.E.

1892 Robinson, George H. Drummond, M.D., B.S. Lond., 84, Park street, Grosvenor square, W.

1887 Robinson, Hugh Shapter, L.R.C.P. Ed., Talfourd House, Camberwell, S.E.

1884† Robinson, Luke, M.R.C.P. Lond., 533, Sutter street, San Francisco, California.

1892 Robinson, Mark, L.R.C.P. Lond., Geraldine Lodge, 75, East hill, Wandsworth, S.W.

1890† Robson, A. W. Mayo, F.R.C.S., Hillary place, Leeds.

1876† Roe, John Withington, M.D., Ellesmere, Salop.

1874† Roots, William Henry, Canbury House, Kingston-on-Thames.

1874 Roper, Arthur, M.D.St.And., Colby, Lewisham hill, S.E. *Council*, 1886-8.

1865*† Roper, George, M.D., Consulting Physician to the Royal Maternity Charity; Oulton Lodge, Aylsham, Norfolk. *Council*, 1875-77, 1883-5. *Vice-Pres.* 1879-81, 1889, *Board Exam. Midwives*, 1880-1, 1883-5. *Trans.* 10.

1859 Rose, Henry Cooper, M.D., Penrose House, Hampstead, N.W. *Council*, 1875-77. *Trans.* 4.

1893† Rosenau, Albert, M.D., Hôtel Victoria, Kissingen, Bavaria.

1883† Rosser, Walter, M.D., 1, Wellesley villas, Croydon.

1884† Rossiter, George Frederick, M.B., Surgeon to the Weston-super-Mare Hospital; Cairo Lodge, Weston-super-Mare.

1884† Roughton, Walter, F.R.C.S., Cranborne House, New Barnet.

1882 Routh, Amand, M.D., B.S., Assistant Obstetric Physician to, and Teacher of Practical Obstetrics and Gynæcology at, Charing Cross Hospital; 14A, Manchester square, W. *Council*, 1886-8. *Board Exam. Midwives*, 1893-4. *Trans.* 2.

Elected

O.F.* ROUTH, CHARLES HENRY FELIX, M.D., Consulting Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61. *Vice-Pres.* 1874-6. *Trans.* 13.

1887*†ROWE, ARTHUR WALTON, M.D. Dur., 1, Cecil street, Margate.

1881† ROWORTH, ALFRED THOMAS, Grays, Essex.

1886 RUSHWORTH, FRANK, M.D. Lond., 1A, Goldhurst terrace, South Hampstead, N.W.

1888† RUSHWORTH, NORMAN, L.R.C.P. Lond., Beechfield, Walton-on-Thames.

1886† RUTHERFOORD, HENRY TROTTER, B.A., M.B. Cantab., Park street, Taunton. *Council*, 1892-93. *Trans.* 1.

1866*†SABOIA, Baron V. de, M.D., Director of the School of Medicine, Rio de Janeiro; 39, Rua dos Andrados, Rio de Janeiro. *Trans.* 2.

1864*†SALTER, JOHN H., D'Arcy House, Tolleshunt D'Arcy, Kelvedon, Essex. *Council*, 1894.

1868* SAMS, JOHN SUTTON, St. Peter's Lodge, Eltham road, Lee, S.E. *Council*, 1892.

1886† SANDERSON, ROBERT, M.B. Oxon., 98, Montpellier road, Brighton.

1872 SANGSTER, CHARLES, 148, Lambeth road, S.E.

1870† SAUL, WILLIAM, M.D., Lyndthorpe, Boscombe, Bournemouth.

1891 SAUNDERS, FREDERICK WILLIAM, M.B., B.C.Cantab., Chieveley House, near Newbury.

1872† SAVAGE, THOMAS, M.D., Surgeon to the Birmingham and Midland Hospital for Women; 33, Newhall street, Birmingham. *Council*, 1878-80.

1877 SAVORY, CHARLES TOZER, M.D., 6, Douglas road, Canonbury, N. *Trans.* 1.

1890 SCHACHT, FRANK FREDERICK, B.A., M.D.Cantab., 168, Earl's Court road, S.W.

1870† SCOTT, JOHN, M.D., Cramond House, Sandwich.

1888 SCOTT, PATRICK CUMIN, B.A., M.B. Cantab., 38, Shooter's Hill road, Blackheath, S.E.

Elected

1866 SEQUEIRA, JAMES SCOTT, 68, Leman street, Goodman's fields, E., and Crescent House, Cassland crescent, Cassland road, South Hackney, N.E.

1882 SERJEANT, DAVID MAURICE, M.D., 1, The Terrace, Camberwell, S.E.

1875 SETON, DAVID ELPHINSTONE, M.D., 1, Emperor's gate, S.W. *Council*, 1884.

O.F.† SHARPIN, HENRY WILSON, F.R.C.S., Consulting Surgeon to the Bedford General Infirmary; 1, St. Paul's square, Bedford. *Council*, 1871-3. *Trans.* 1. *Hon. Loc. Sec.*

1887 SHAW, JOHN, M.D. Lond., Obstetric Physician to the North West London Hospital; 34, Queen Anne street, Cavendish square, W. *Trans.* 2.

1891 SHAW-MACKENZIE, JOHN ALEXANDER, M.B.Lond., 24, Savile row, W.

1890 SILK, JOHN FREDERICK WILLIAM, M.D. Lond., 29, Weymouth street, Portland place, W.

1874† SINCLAIR, ALEXANDER DOULL, M.D., Consulting Physician to the Boston Lying-in Hospital; 35, Newbury street, Boston, Massachusetts, U.S.

1888† SINCLAIR, WILLIAM JAPP, M.D. Aber., Honorary Physician to the Southern Hospital for Women and Children and Maternity Hospital, Manchester; and Professor of Obstetrics and Gynæcology, Owens College, Manchester; 250, Oxford road, Manchester.

1879† SLIGHT, GEORGE, M.D., 37, Western street, King's road, Brighton.

1881† SLOAN, ARCHIBALD, M.B., 272, Bath street west, Glasgow.

1876† SLOAN, SAMUEL, M.D., C.M., 5, Somerset place, Sauchiehall street west, Glasgow.

1890† SLOMAN, FREDERICK, 18, Montpellier road, Brighton.

1861 SLYMAN, WILLIAM DANIEL, 26, Caversham road, Kentish Town, N.W. *Council*, 1881.

1867* SMITH, HEYWOOD, M.D., 18, Harley street, Cavendish square, W. *Council*, 1872-5. *Board Exam. Midwives*, 1874-76. *Trans.* 6.

Elected

1888† SMITH, HOWARD LYON, L.R.C.P.Lond., Buckland House, Buckland Newton, near Dorchester.

1890 SMITH, HUGH, M.D.Lond., Englefield House, High street, Highgate, N.

1894 SMITH, HUGH ROUBILIAC, M.B.Lond., 7, Gordon street, Gordon square, W.C.

1875 SMITH, RICHARD THOMAS, M.D., Physician to the Hospital for Women, Soho square; 53, Haverstock hill, N.W.

1886† SMITH, SAMUEL PARSONS, L.K.Q.C.P.I., Park Hyrst, Addiscombe road, Croydon.

1882† SMITH, STEPHEN MABERLY, L.R.C.P. Ed., Keerie Kara, Ryrie Street, Geelong, Melbourne. [Per Henry M. Smith, Ellerslie, Eltham.]

1879† SMITH, WALTER HUGH MONTGOMERY, L.R.C.P.Ed., 47, London road, West Croydon.

1868* SPAULL, BARNARD E., 1, Stanwick road, West Kensington, W.

1888* SPENCER, HERBERT R., M.D., B.S.Lond., Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 10, Mansfield street, Cavendish square, W. *Council*, 1890-92. *Trans.* 2.

1876† SPENCER, LIONEL DIXON, M.D., Brigade-Surgeon, I.M.S., Bengal Establishment [care of Messrs. Grindlay and Co., 55, Parliament street, S.W.].

1882 SPOONER, FREDERICK HENRY, M.D., Maitland Lodge, Maitland place, Clapton, N.E.

1876† SPURGIN, HERBERT BRANWHITE, 82, Abington street, Northampton.

1893 STACK, E. H. EDWARDS, M.B., B.C. Cantab., St. Bartholomew's Hospital, E.C.

1884† STEVENSON, EDMOND SINCLAIR, F.R.C.S. Ed., Strathallan House, Rondebosch, Cape of Good Hope. *Trans.* 2.

1877† STEPHENSON, WILLIAM, M.D., Professor of Midwifery, University of Aberdeen; 3, Rubislaw terrace, Aberdeen. *Council*, 1881-3. *Vice-Pres.*, 1887-89. *Trans.* 2.

Elected

1873† Stewart, James, M.D.

1875*†Stewart, William, F.R.C.P.Ed., Dyrock Cottage, Prestwick, near Ayr, N.B.

1884† Stiven, Edward W. F., M.D., The Manor Lodge, Harrow on the Hill.

1884 Stivens, Bertram H. Lyne, M.D.Brux., 11, Kensington gardens square, W.

1883 Stocks, Frederick, 421, Wandsworth road, S.W.

1866* Strange, William Heath, M.D., 2, Belsize avenue, Belsize park, N.W. *Council*, 1882-4.

1884 Sunderland, Septimus, M.D., 35, Bruton street, Berkeley square, W.

1886† Sutcliffe, Arthur Edwin, Chorlton Lodge, Stretford road, Manchester.

1883* Sutherland, Henry, M.A., M.D. Oxon., M.R.C.P., 6, Richmond terrace, Whitehall, S.W.

1888 Sutton, John Bland, F.R.C.S., 48, Queen Anne street, Cavendish square, W. *Council*, 1894. *Trans.* 1.

1893 Swan, Richard Jocelyn, Park House, 32, Camberwell new road, S.E.

1893 Swayne, Francis Griffiths, M.A., M.B., B.C.Cantab., 4, Belvedere road, Upper Norwood, S.E.

1859*†Swayne, Joseph Griffiths, M.D., Physician-Accoucheur to the Bristol General Hospital; Harewood House, 74, Pembroke road, Clifton, Bristol. *Council*, 1860-61, *Vice-Pres.* 1862-64. *Trans.* 9.

1892† Swayne, Walter Carless, M.B. Lond., 3, Leicester villas, St. Paul's road, Clifton.

1888* Sworn, Henry George, L.K.Q.C.P. & L.M., 5, Highbury crescent, N.

1883 Tait, Edward Sabine, M.D., 48, Highbury park, N. *Council*, 1892-94. *Trans.* 1.

Elected

1879 TAIT, EDWARD W., 48, Highbury park, N. *Council*, 1886-7.

1871† TAIT, LAWSON, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women; 7, The Crescent, Birmingham. *Trans.* 15.

1880*†TAKAKI, KANAHEIRO, F.R.C.S., 10, Nishi-Konyachō, Kiōbashika, Tokio, Japan. *Hon. Loc. Sec.*

1859 TAPSON, ALFRED JOSEPH, M.B. Lond., 36, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64. *Vice-Pres.* 1891.

1863 TAPSON, JOSEPH ALFRED, L.R.C.P. Lond., Holmwood, The Grove, Clapham common, S.W. *Trans.* 1.

1891 TARGETT, JAMES HENRY, M.D., B.S.Lond., F.R.C.S., 6, St. Thomas's street, S.E.

1892 TATE, WALTER WILLIAM HUNT, M.B.Lond., 4, Queen Anne street, Cavendish square, W.

1871 TAYLER, FRANCIS T., B.A. Lond., M.B., Claremont villa, 224, Lewisham high road, S.E.

1869† TAYLOR, JOHN, Earl's Colne, Halstead, Essex.

1890*†TAYLOR, JOHN WILLIAM, F.R.C.S., 59, Bath street, Birmingham. *Trans.* 1.

1892 TAYLOR, WILLIAM BRAMLEY, 145, Denmark hill, S.E.

1885† TAYLOR, WILLIAM CHARLES EVERLEY, M.R.C.P. Edin., 34, Queen street, Scarborough.

1890† THOMAS, BENJAMIN WILFRED, L.R.C.P. Lond., Welwyn.

1884 THOMAS, GEORGE H. W.

1887† THOMAS, WILLIAM EDMUND, L.R.C.P.Ed., 2, Station hill, Bridgend, Glamorganshire.

1882† THOMAS, HUGH, The Grange, Coventry road, Birmingham.

1867*†THOMPSON, JOSEPH, L.R.C.P. Lond., 1, Oxford street, Nottingham. *Trans.* 1. *Hon. Loc. Sec.*

1878† THOMSON, DAVID, M.D., Park square, Luton, Bedfordshire.

Elected

1879 THORNTON, J. KNOWSLEY, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children, 49, Montagu square, W. *Council*, 1882-3. *Hon. Lib.* 1884-5. *Hon. Sec.* 1886. *Vice-Pres.* 1888, 1893. *Trans.* 6.

1873† TICEHURST, CHARLES SAGE, Petersfield, Hants.

1866 TILLEY, SAMUEL, 32, West Kensington gardens, W.

1887† TINLEY, THOMAS, M.D. Durh., Hildegard House, Whitby.

1879† TIVY, WILLIAM JAMES, F.R.C.S. Ed., 8, Lansdown place, Clifton, Bristol.

1872† TOLOTSCHINOFF, N., M.D., Charkoff, Russia.

1884 TRAVERS, WILLIAM, M.D., 2, Phillimore gardens, W.

1873† TRESTRAIL, HENRY ERNEST, F.R.C.S. Ed., M.R.C.P. Ed., 36, Westbourne gardens, Glasgow, W. *Trans.* 1.

1893 TRETHOWAN, WILLIAM, M.B., C.M. Aber., 5, Callow street, South Kensington, S.W.

1886 TUCKETT, WALTER REGINALD, Woodhouse Eaves, near Loughborough.

1865* TURNER, JOHN SIDNEY, Stanton House, 81, Anerley road, Upper Norwood, S.E. *Council*, 1893-4.

1891 TURNER, PHILIP DYMOCK, M.D.Lond., 95, Cromwell road, S.W.

1881† TUTHILL, PHINEAS BARRETT, M.D., Station Hospital, Gibraltar.

1861 TWEED, JOHN JAMES, jun., F.R.C.S., 14, Upper Brook street, W.

1890 TYRRELL, WALTER, L.R.C.P.Lond., 104, Cromwell road, S.W.

1893 UMNEY, WILLIAM FRANCIS, M.D.Lond., Heatherbell, 15, Crystal Palace park road, Sydenham, S.E.

1874 VENN, ALBERT JOHN, M.D., Physician for the Diseases of Women, West London Hospital; 122, Harley street, W.

1873 VERLEY, REGINALD LOUIS, F.R.C.P. Ed., 28B, Devonshire street, Portland place, W.

Elected

1892† VERRALL, THOMAS JENNER, L.R.C.P.Lond., 97, Montpellier road, Brighton.

1879† WADE, GEORGE HERBERT, Ivy Lodge, Chislehurst, Kent. *Council*, 1892-93.

1860† WALES, THOMAS GARNEYS, Downham Market, Norfolk.

1866† WALKER, THOMAS JAMES, M.D., Surgeon to the General Infirmary, Peterborough; 33, Westgate, Peterborough. *Council*, 1878-80. *Hon. Loc. Sec.*

1889 WALLACE, ABRAHAM, M.D. Edin., 64, Harley street, W.

1870 WALLACE, FREDERICK, Foulden Lodge, Upper Clapton, N.E. *Council*, 1880-2.

1872*†WALLACE, JOHN, M.D., Assistant-Physician to the Liverpool Lying-in Hospital; 1, Gambier terrace, Liverpool. *Council*, 1883-5.

1883 WALLACE, RICHARD UNTHANK, M.B., Cravenhurst, Craven park, Stamford hill, N.

1893† WALLS, WILLLAM KAY, M.B. Lond., St. Mary's Hospital, Manchester.

1879* WALTER, WILLIAM, M.A., M.D., Surgeon to St. Mary's Hospital, Manchester; 20, St. John street, Manchester.

1867* WALTERS, JAMES HOPKINS, Surgeon to the Royal Berkshire Hospital; 15, Friar street, Reading, Berks. *Council*, 1884-6. *Trans.* 1. *Hon. Loc. Sec.*

1873† WALTERS, JOHN, M.B., Church street, Reigate, Surrey.

1884† WATSON, PERCIVAL HUMBLE, L.R.C.P. Lond., 72, Jesmond road, Newcastle-on-Tyne.

1884† WAUGH, ALEXANDER, L.R.C.P. Lond., Midsomer-Norton, Bath.

O.F.† WEBB, HARRY SPEAKMAN, New place, Welwyn, Herts. *Council*, 1889-91. *Vice.-Pres.* 1892-94.

1893† WEBB, JAMES RAMSAY, M.B., B.S.Melbourne, 82, St. Vincent place south, Albert park, Melbourne.

1886† WEBBER, WILLIAM W., L.R.C.P. Ed., Crewkerne.

1893† WEBSTER, THOMAS JAMES, Brynglâs, Merthyr Tydvil.

Elected

1876† Weir, Archibald, M.D., St. Mungho's, Great Malvern.

1887† Wells, Albert Primrose, M.A., L.R.C.P. & S., L.M., 16, Albemarle road, Beckenham.

1876† Wells, Frank, M.D., 178, Devonshire street, Boston, Massachusetts.

O.F. Wells, Sir T. Spencer, Bart., F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Consulting Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859. *Vice-Pres.* 1868-70. *Trans.* 5. *Trustee.*

1886† West, Charles J., L.R.C.P. Lond., The Grove, Fulbeck, Grantham.

1888† Weston, Joseph Theophilus, M.D.Brux., Prome, Lower Burmah, India.

1886 Wharry, Robert, M.D. Aber., 6, Gordon square, W.C.

1890 Wheaton, Samuel W., M.D.Lond., Physician to the Royal Hospital for Children and Women; 52, The Chase, Clapham common, S.W.

1860† Wheeler, Daniel, Chelmsford.

1889† Whitcombe, Charles Henry, F.R.C.S. Edin., Westerham, Kent.

1890 White, Charles Percival, M.A., M.B., B.C.Cantab., 144, Sloane street, S.W.

1890 White, Edwin Francis, F.R.C.S., Westlands, 280, Upper Richmond road, Putney, S.W.

1882 Wholey, Thomas, M.B. Durh., Winchester House, 50, Old Broad street, E.C.

1877 Wigmore, William, 131, Inverness terrace, Hyde park, W.

1879† Willans, William Blundell, F.R.C.P. Ed., Much Hadham, Herts.

1889† Williams, Arthur Henry, M.A., M.B., B.C. Cantab., 54, London road, St. Leonard's-on-Sea.

1887† Williams, Charles Robert, M.B., C.M. Ed., 15, Ivanhoe terrace, Ashby-de-la-Zouch.

Elected

1872 WILLIAMS, JOHN, M.D., F.R.C.P., Physician-Accoucheur to H.R.H. Princess Beatrice, Princess Henry of Battenberg; Consulting Obstetric Physician to University College Hospital; 63, Brook street, Grosvenor square, W. *Council*, 1875-76, 1892, 1894. *Hon. Sec.* 1877-9. *Vice-Pres.* 1880-2. *Board Exam. Midwives*, 1881-2; *Chairman*, 1884-6. *Pres.* 1887-8. *Trans.* 12.

1890 WILLIAMS, REGINALD MUZIO, M.D.Lond., 95, St. Mark's road, N. Kensington, W.

1881 WILLIS, JULIAN, M.R.C.P. Ed., 64, Sutherland avenue, Maida vale, W.

1860† WILSON, ROBERT JAMES, F.R.C.P. Ed., 7, Warrior square, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec. Vice-Pres.* 1878-80.

1892† WILSON, THOMAS, M.D., B.S.Lond., F.R.C.S., Assistant Obstetric Physician at the General Hospital, Birmingham; 33, Paradise street, Birmingham.

1886† WINTERBOTTOM, ARTHUR THOMAS, L.R.C.P. Ed., Lark hill, Swinton, Manchester.

1877 WINTLE, HENRY, M.B., Kingsdown, Church road, Forest hill, S.E.

1893 WISE, ROBERT, M.D.Edin., 5, Weston park, Crouch End, N.

1887† WITHERS, ROBERT, Lawrence, Otago, New Zealand.

1893 WOODROFFE, JOHN FITZHENRY, M.D.Dubl., 48, Mildmay park, N.

1890 WORNUM, GEORGE PORTER, 6, College terrace, Belsize park, N.W.

1881† WORTHINGTON, GEORGE FINCH JENNINGS, M.K.Q.C.P., Thorncliffe, Poole road, Bournemouth.

1876† WORTS, EDWIN, 6, Trinity street, Colchester.

1887† WRIGHT, CHARLES JAMES, Surgeon to the Hospital for Women and Children, Leeds; Professor of Midwifery to the Yorkshire College; Lynton Villa, Virginia road, Leeds.

Elected

1888*†WYATT-SMITH, FRANK, M.B., B.C.Cantab., British Hospital, Buenos Ayres.

1889 WYNTER, ANDREW ELLIS, L.R.C.P. Lond., 30, Upper Berkeley street, Portman square, W.

1871 YARROW, GEORGE EUGENE, M.D., 26, Duncan terrace, Islington, N. *Council*, 1881-3.

1882*†YOUNG, CHARLES GROVE, M.D., New Amsterdam, Berbice, British Guiana.

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OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1893.

JANUARY 4TH, 1893.

J. WATT BLACK, M.D., President, in the Chair.

Present—31 Fellows and 4 visitors.

The following gentlemen were elected Fellows of the Society:—Richard Henry Barber, L.R.C.P. & S.Edin. (Oregon, U.S.); Ferdinand Campion Batchelor, M.B.Durh. (Dunedin, N.Z.); Henry Ferdinand Bernau, L.R.C.P.Lond. (E. Finchley); Frederick Bernard Betts, L.R.C.P.Lond.; Henry St. George Boswell, M.B.Edin. (Saffron Walden); James Craig, M.D.Edin. (Beckenham); William Harrison Cripps, F.R.C.S.; W. Bruce Clarke, F.R.C.S.; Philip Henry Dunn, L.R.C.P.Lond. (Stevenage); Bowie Campbell Gowan, L.R.C.P.Lond. (Great Stanmore); Thomas Horatio Haydon, M.B., B.C.Cantab. (Richmond); Walter Wheeler Heelas, L.P.C.P.Lond.; Henry Laver, M.R.C.S. (Colchester); Roderic Robert Walter Logan, M.R.C.S. (Leighton Buzzard); Archibald Lamont Macphail, L.F.P.S. & L.M.Glasg.; Harry Michie, M.B.Aber. (Nottingham); James Morrison, L.R.C.P.Lond.; John Stuart Nairne,

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The following gentlemen were proposed for election:—John Henry Dauber, L.R.C.P.Lond.; Thomas Watts Eden, M.D., C.M.Edin.; Sydney Nevill Harrison, M.B., B.C. Cantab. (Stourport); Walter George Lowe, M.D.Lond. (Burton-on-Trent); Ewan John Maclean, M.D., C.M.Edin.; Domingo Antonio de Montbrun, L.R.C.P.Lond. (Trinidad); Robert Milne Murray, M.B.Edin. (Edinburgh); Hugh James Moon Playfair, M.D.Lond.; and William Trethowan, M.B., C.M.Aber.

The President nominated the following gentlemen as Auditors of the accounts for 1892:—Mr. Alban Doran, Dr. H. Roxburgh Fuller, Dr. F. J. McCann, Dr. S. W. Wheaton, and Dr. Horrocks.

SPECIMEN OF CALCIFICATION OCCURRING IN A FIBROID OF THE UTERUS.

By M. Handfield-Jones, M.D.

A committee consisting of Drs. Champneys, Cullingworth, and Handfield-Jones, was appointed to report on this specimen.

MULTIPLE FIBRO-MYOMA.

By A. D. Leith Napier, M.D.

A large multiple fibro-myoma removed by abdominal section. The tumour had shrunk somewhat from being placed in spirit, but the main mass was still roughly the size of an adult head. A secondary mass, attached by adhesion to the posterior surface of the uterus, was larger than a closed fist, and several smaller outgrowths of the size of Tangerine oranges adhered to the large growth.

The patient was a single woman aged 38. Six to seven years ago the tumour, then of small size, had been detected. Except some increase of menstrual flow no symptoms of importance were present until four months ago; then there was a very rapid increase of the growth; great pelvic pain of throbbing nature, very free hæmorrhages, and grave pressure symptoms were experienced. For two months before operation there had been constant loss. On operating it was found that the uterus did not enter into the growth, which was contained within a very vascular capsule, and attached to the uterus by a highly vascular narrow piece of connective tissue. Very close adhesions to bowels and bladder existed. The operation was described.

NEEDLES AND NEEDLE-HOLDER, AND SELF-RETAINING SPECULUM.

Shown by A. D. Leith Napier, M.D.

BONY GIRDLE FROM A DERMOID TUMOUR.

By S. W. Wheaton, M.D.

Dr. Wheaton showed a specimen removed from a dermoid tumour of the ovary, occurring in a woman, aged 32, who had been four times pregnant. It consisted of a complete elliptical girdle of bone, measuring 1½ by 2 inches in diameter, and was fixed to a larger lobulated bony mass, measuring 2¼ by 1½ inches in diameter, and having an indistinct resemblance to an immature fœtal skull. The girdle consisted of four distinct separate pieces of bone, moveable upon one another. The two lateral pieces were longer and curved, the other pieces being short and straight. It thus resembled the typical bony somite of a vertebrate animal. A tooth was fixed upon one of the lateral pieces of bone. The girdle was contained in the wall of a cyst, which contained cheesy material and dark-coloured hair; the larger lobulated mass formed the floor of another cyst. The whole tumour measured 8 inches in its longest diameter and 4 inches transversely; and besides the two cysts mentioned, which were situated at the base of the tumour, it contained two smaller cysts and an innumerable number of small cysts collected together into a sponge-like mass, and having upon its upper surface a large thin-walled cyst filled with clear fluid. The tumour extended 2 inches above the umbilicus, having developed from the right ovary, and was tightly wedged in between the uterus and bladder in the middle line of the abdomen. It gave rise to great difficulty in diagnosis, the presence of a distinct ring and nodular bony mass, which could both be felt *per vaginam*, raising the suspicion of an extra-uterine gestation. An exploratory operation was decided upon, and performed by the author's colleague, Mr. Marmaduke Sheild. There was considerable difficulty in extracting the tumour, a large

incision being required in the abdominal parietes. The other ovary was normal. The patient made a complete recovery.

M. Répin had shown a specimen before the Anatomical Society of Paris, an account of which appeared in the 'Annales de Gynécologie et d'Obstétrique,' August, 1892; in this specimen four imperfectly developed fœtal limbs were found embedded in the wall of a dermoid cyst. In two of the limbs distinct digits were present, and the limbs were fixed to a solid mass of bone, bearing at its upper end a cup-shaped mass of bone, which was supposed to represent the base of the skull, and from which teeth were growing. Two cords represented the sciatic nerves, and a salivary gland was present. The same cyst contained a loop of small intestine, fixed to its wall at some distance from the bony mass.

Dr. Wheaton said that the presence of symmetrical bony developments, as in the specimen shown, together with mammæ, nipples, teeth, hair, glands, and possibly nerve-fibres in dermoid tumours of the ovary, and the fact that they might occur at any age, suggested that they were due to the partial development of an unimpregnated ovum or an imperfect parthenogenesis. The development of complete individuals from ova, without previous impregnation, was not uncommon in some of the lower animals, particularly the Insecta; and the term parthenogenesis was first applied to it by the late Professor Owen. It was proposed to make a careful dissection of the specimen after maceration.

A committee, consisting of Drs. Cullingworth, Herbert R. Spencer, and Wheaton, was appointed to report on this specimen.

BILATERAL CEPHALHÆMATOMATA.

By S. W. Wheaton, M.D.

Dr. Wheaton showed a cast of the head of a child suffering from bilateral cephalhæmatoma. The mother was a primipara ; there was no pelvic contraction ; the presentation was of the vertex in the first position, and the labour not unduly prolonged. The tumours extended one on each side of the sagittal suture from the coronal to the lambdoidal suture, covering almost the whole of both parietal bones, so that the back of the child's head had a natiform appearance.

Around the periphery of each tumour there was a characteristic elevated bony margin. The tumours completely disappeared in a fortnight. Dr. Wheaton said that the specimen was interesting from its rarity. The fact that these tumours might be bilateral or multiple was not mentioned in text-books.

Professor Merttens, in the 'Zeitschrift für Geburtshülfe und Gynäkologie,' vol. xxiv, p. 215, stated that in thirty years twenty-one cases of cephalhæmatoma had been observed at the Marburg clinic, giving a proportion of 1 in 300 children born ; in two cases only was there more than one tumour, and in only one of these were the tumours bilateral. These tumours were generally supposed to be due to laceration of a small vessel passing from the pericranium to the bone with consequent accumulation of blood beneath the pericranium, the laceration of the vessel being due to severe pressure on the head during birth. The tumours might, however, develop where pressure on the head was not unduly severe, as in the present instance. Having had the opportunity of dissecting a recent case, he found that most careful dissection failed to discover any vessel which had been torn, and thought that the hæmorrhages

in these cases were capillary, and due to asphyxia occurring in the infant during birth.

The case was also interesting from the point of view of forensic medicine, as showing that large multiple swellings of this nature might occur after a perfectly normal labour, without any undue pressure on, or violence inflicted upon the child's head.

Dr. AMAND ROUTH asked if it was quite certain that the hard ridge felt round the edge of an absorbing cephalhæmatoma was due to bone formation, and not, as some thought, to partly organised clot at the periphery, whilst the central portions had become softened and depressed by partial absorption.

Dr. HERBERT SPENCER had also seen an example of bilateral cephalhæmatoma, and he believed a case had been published in which there were four tumours present. In post-mortem examinations of stillborn children he had often found slight and occasionally considerable collections of blood beneath the periosteum covering the cranial bones, and he regarded these as differing only in degree from the cephalhæmatomata observed clinically. There were no large vessels from which the blood could come; and in the autopsies alluded to he had been able, after removal of the blood, by squeezing the skull to cause blood to issue from minute pores in the bones, this suggesting that the rupture of vessels passing through the bones to the periosteum was the cause of the effusion.

Dr. WHEATON said, in reply to Dr. Amand Routh, that in the specimen of cephalhæmatoma which he had dissected, the hard elevated margin of the tumour was due to the deposition of grit-like bone in the pericranium, at the point where it was elevated from the bone by the blood effused beneath it, and not to the formation of blood-clot.

ON THE FREQUENCY OF THE LOCAL SYMPTOMS ASSOCIATED WITH BACKWARD DISPLACEMENT OF THE UTERUS.

By G. Ernest Herman, M.B.Lond., F.R.C.P.,
OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

(Received March 22nd, 1892.)

(*Abstract.*)

This paper is based on an analysis of 407 cases of backward displacement of the uterus.

The author finds that *chronic pain* of some kind is present in nine-tenths of cases of backward displacement of the uterus. The most frequent seat of pain is the back, generally the sacral region. Next most often come sensations of descent, and unilateral pains, mostly in the ovarian region, cases of left-sided pain outnumbering those of right-sided pain in the proportion of three to one. In a small proportion lower abdominal pain is the chief complaint, and in a very small minority trouble in locomotion is the prominent symptom.

Pain in defæcation is present in less than half the cases. In the majority of the cases in which it is present it is accounted for either by constipation or by morbid conditions of the rectum. The author estimates the proportion of cases of backward displacement of the uterus, in which the displacement is the sole cause that defæcation is painful, at about one in nine.

Backward displacement of the uterus has no appreciable effect as a cause of *painful micturition;* but *bladder irritation* due solely to the displacement is present in about one case in five.

Leucorrhœa is not commoner in cases of backward displacement of the uterus than among other patients.

Dyspareunia is present in at least one-sixth, and probably in a larger number; absent in at least one-seventh.

Gynæcologists are still far from unanimous as to the symptoms which are, or may be, caused by backward displacement of the uterus.

In considering the question of what these symptoms are, it seems to me that the first thing to be ascertained is the frequency with which different symptoms accompany the displacement.

The only author that I know of who has put before the profession numerical statements such as I am about to make is Winckel ;* but as I am unable to ascertain how his calculated percentages were arrived at, I cannot compare them with my own. Therefore, having directed attention to them, I shall not further refer to them.

This paper is based on 407 cases of retroversion and retroflexion of the uterus. I make no distinction between these two shapes of the uterus, because I do not think the difference is important. The cases comprise all those occurring in the out-patient practice of the London Hospital, without any selection, during a period in which notes were taken by myself and preserved in a form convenient for reference. Of some of these cases, at subsequent visits, full notes were taken, either by me or by a clinical clerk. Of the others I have only the brief notes taken at the patient's first visit. In two cases there was reason to believe that a small fibroid was present, and in one commencing cancer. These I have excluded. There remain 404 cases on which the numerical statements which follow are based.

In a former communication I have put before the Society an analysis of the condition of menstruation in these patients. In the present one I have nothing to say as to menstruation. I propose to examine the frequency of the other common local symptoms, for which these displacements, when discovered, are often held responsible.

The symptoms, as to the frequency of which I present observations, are the following :

1. Persistent pain.

* 'Die Pathologie der weiblichen Sexual-Organe,' 1881, s. 127.

2. Pain in defæcation.
3. Pain in micturition.
4. Undue frequency of micturition.
5. Leucorrhœa.
6. Dyspareunia.

First as to *persistent pain*. In 27 cases I have no record that the patient complained of any persistent pain. Although it is possible that hasty note-taking may have been the cause of the omission, yet it may be correctly inferred that if these patients had pain, it was not very bad pain, it was not the chief reason for seeking advice, and not the complaint put prominently forward.

In 20 cases I have it noted that inquiry was made, and there was no pain whatever, except of an occasional nature and at the menstrual period. Of these 20, 6 applied for treatment on account of menstrual pain, 7 for uterine hæmorrhage, 1 for hæmorrhoids, 2 for vaginal discharge, 1 for dyspareunia, 1 for diagnosis as to pregnancy, and the others for what they thought was "debility."

Thus we have—

357 cases,	or 88·4 per cent.,		who suffered from persistent local pain.
20 „	or 4·9	„	who were undoubtedly free from persistent pelvic pain.
27 „	or 6·6	„	who suffered either not at all or very little persistent pain.

I now pass to the more detailed consideration of the habitual pain in the 357 patients who suffered from it. The kinds of pain complained of may be conveniently divided as follows :

(*a*) Pain in back.
(*b*) Sensations of descent.
(*c*) Unilateral pains.
(*d*) Abdominal pain not unilateral.
(*e*) Pain connected with locomotion.
(*f*) Other pains.

As the notes were not all equally complete, some having been very hastily taken, I think it possible that some

patients who mentioned one kind of pain might perhaps, if more closely questioned, have described other pains as well. The statements I submit may, therefore, be erroneous in the direction of under-estimating the frequency of the different kinds of pain. This source of error applies equally to all the different kinds of pain, and therefore does not affect the results as to their relative frequency. It will be seen, from the figures already given, that the number of cases in which pain was altogether overlooked cannot possibly have exceeded 6·6 per cent.

(*a*) *Pain in Back.*

In 163 patients, or 45·6 per cent. of those who had pain, the back was the seat of the most troublesome pain.

In 26 of these the notes only record back-ache, without specifying the region.
„ 59 „ the pain was sacral.
„ 39 „ „ „ lumbar.
Of these, in 26 the pain was bilateral.
„ „ 10 „ „ left-sided.
„ „ 3 „ „ right-sided.
„ 27 of these the pain was referred to both lumbar and sacral regions.
„ 11 „ the pain was dorsal; and 4 of those with sacral pain had dorsal pain as well.

If we eliminate those with back-ache of undefined seat, and add together those suffering from each kind of pain, we get 90 with sacral pain, 66 with lumbar pain, 11 with dorsal pain. Roughly speaking, then, the relative frequency of sacral, lumbar, and dorsal pain is as 15, 11, and 2.

Back-ache is so common a symptom among ailing women, that I do not think the mere fact that a large proportion of these patients suffered from it is novel or important. But there are two points which seem to me worth attention. One is the large proportion of cases in which the back-ache was sacral. The back-ache from which weakly

women so commonly suffer is lumbar or dorsal. Although the frequent presence of sacral pain with backward displacements of the uterus is mentioned in most text-books, yet I am not aware of any numerical estimate of its frequency. The second point is that while the back-ache was in most cases bilateral, yet that, in those in whom it was unilateral, cases of left-sided back-ache outnumbered those of right-sided back-ache in the proportion of three to one. I shall consider the explanation of this after stating the frequency of other kinds of unilateral pain.

(*b*) *Sensations of Descent.*

It is generally admitted that backward displacement of the uterus is often associated with descent. The patient often finds out for herself that there is descent. Among the 357 patients who suffered persistent local discomfort, the principal painful sensations were those usually indicating descent in 133, or 37 per cent. of those who had pain.

Of these, 69 complained of "bearing-down pain."
„ 61 were still more explicit, and said either that the womb "came down," or "dropped," or "fell," or that "something" came down.
„ 1 put it that there was "forcing in the womb."
„ 1 said that there was a "swelling in the front passage" (slight cystocele).
„ 1 only "felt something when she sat up."

In 52 cases out of these 133 the sensation indicating descent was the only disagreeable sensation of which the patient complained. In the remaining 81 the patients also complained of pain over and above the feeling of descent. In 12 there was abdominal pain; in 36, back-ache; in 22, left-sided pain; in 4, right-sided pain; and in 7, pain of other kinds.

(*c*) *Unilateral Pain.*

In 139 patients, or 38·7 per cent. of those who had pain, the pain was said to be on one side of the body, but not

on the other. In 106 this pain was on the left side, in 33 on the right. The situation of the unilateral pain was as follows:

Left-sided Pain.

In 74 it was in the iliac—in other words, ovarian,—region.
„ 8 „ down the thigh.
„ 6 „ in the hypochondriac region.
„ 3 „ „ hip.
„ 1 „ „ arm.
„ 1 „ numbness of the leg.
„ 13 its seat was not exactly defined. In 1 of these the sensation was described as "heat," in another as "throbbing."

Right-sided Pain.

In 28 the pain was in the iliac—that is, ovarian,—region.
„ 2 it was in the hypochondriac region.
„ 1 „ down the thigh.
„ 1 „ numbness in the thigh.
„ 1 its seat was not specified.

It will be seen that among these cases left-sided pain was about three times as common as right-sided pain—about the same proportion as in those whose chief complaint was back-ache on one side.

Various explanations have been given of why left ovarian pain is so much more frequent than right ovarian pain. Most of them are such as would, if correct, account for a preponderance of left-sided disease as well as pain in the pelvis. Such, for instance, are the facts that the left ovary is nearer to the uterus than the right; the left tube shorter than the right; the course of the spermatic vein different in the two sides; the disturbing influence of the rectum on the left side; the greater damage said to be done to the left side of the pelvis in delivery. Without discussing the validity of these different alleged causes of preponderance of left-sided pain, I would point out, first, that such difference in the frequency of organic disease in the organs on the two sides of the pelvis as is known to exist, is infinitesimal as compared with the great difference

in the frequency of pain. Second, that this difference in the pain exists in disease which is not unilateral, as, for instance, in cancer,* and that backward displacement of the uterus is not a unilateral condition. Third, that among these cases the preponderance of left-sided pain over right is displayed in the figures relating to every kind of pain from which the patients suffered, and not in pelvic pain only. I take it that the simple explanation is that the left side is weaker than the right in power of resistance to pain as well as in muscular force.

(*d*) *Abdominal Pain, not Unilateral.*

In 82 patients, or 22·9 per cent. of those suffering from pain, it was referred to the abdomen without distinction of side. The seat of pain was as follows:

In 52 cases the hypogastric region.
„ 5 „ epigastric region. In 4 of these the disagreeable sensation was spoken of as pain; in 1 of them as "heat."
„ 3 „ umbilical region.
„ 1 case the infra-mammary.
„ 19 the particular part of the abdomen was not noted.

In some of these latter the description of the sensation was unusual. Thus in two the pain was said to be associated with "shifting lumps" in the belly; one patient called it flatulent "spasms;" another, "labour-like pain;" and another, "trembling in the inside." One complained of swelling in the abdomen as well as of pain in it. These descriptions, if correct, point to colicky pain in the bowels. I think it very probable that the patients were right in the diagnosis they had made for themselves, and that the pains were intestinal in their seat, and not dependent on any condition of the uterus.

One patient complained of aching in the pubes, another of pain in the vulva.

* See Champneys, 'Obst. Trans.,' vol. xxii.

(*e*) *Pain connected with Locomotion* ("Dyskinesia").

Pain of this nature was the chief complaint in 18, or 5 per cent. of those who had pain.

9 of these complained of pain down the thighs.
3 „ said they could not stand long.
2 „ that they could not walk.
1 that her "inside swelled" when she walked.
1 that she had pain if she either stood or walked.
1 complained that she could not lift anything.

There are included in this list only those who put prominently forward, as the principal complaint, the symptom named. It does not comprise all those whose symptoms were aggravated by locomotion.

(*f*) *Pain of other Kinds.*

In 24 cases the pains complained of were not referred solely to the pelvis. Among these—

10 patients complained of "weakness." In these I have no distinct statement that pain was absent, although there is no record of its presence. In those referred to in a previous paragraph as suffering from "debility," the patients said, in answer to inquiry, that they had *no* pain.
7 complained of "pain all over."
3 „ „ "sinking sensations."
2 „ „ pains in the limbs.
1 „ „ a cold feeling.
1 „ „ "gravel."

In these I take it that the pain was probably not due to the displacement, but to concomitant conditions.

2. *Painful Defæcation.*

Backward displacement of the uterus is commonly stated to cause painful defæcation. It has also been said to cause flattening of the fæces into a riband shape, and even obstruction of the bowels. Such consequences as these latter I have never seen, nor can I understand how

they can result from bending or turning back of an unimpregnated uterus which is otherwise healthy.

Out of the 404 cases I have notes as to whether defæcation was, or was not, painful in 322.

In 144, or 44·7 per cent., it was painful.
„ 159, or 49·4 „ „ not painful.
„ 19, or 5·9 „ „ occasionally painful.

In those patients who occasionally had pain in defæcation, the most obvious and most reasonable explanation is that the pain depended on unusual hardness of the fæces. Among those in whom defæcation was habitually painful it is obvious that the presence or absence of pain must largely depend upon the consistence of the fæces. I can think of no way of ascertaining the hardness of the fæces in these patients except by inferring it from the fact of constipation. Among those whose bowels are costive the fæcal masses will be larger and harder than among those whose bowels act regularly.

Out of the 144 patients who had pain in defæcation I have notes as to the habit of the bowels in 122 cases. In 92, or 82·1 per cent., it was costive; in 20, or 17·9 per cent., regular.

Out of the 159 who had no pain in defæcation I have notes as to the habit of the bowels in 94. Of these, in 43, or 45·9 per cent., it was costive; in 51, or 54·1 per cent., it was regular.

Put in another way, out of 206 patients of whose habit as to the bowels I have notes, 135 were costive, 71 not. Of those who were costive, 92, or 68·1 per cent., had pain in defæcation; 43, or 31·9 per cent., not. Of the 71 whose bowels were regular, 20, or 28·1 per cent., had pain in defæcation; 51, or 71·9 per cent., not.

It is evident from these figures that among these patients constipation is common, and that the pain in defæcation is largely dependent upon it, but that it is not altogether dependent upon constipation.

In some cases there were morbid conditions of the

rectum which accounted for the pain. In 14 there were hæmorrhoids, in 5 fissures of the anus, in 1 prolapse of the rectum, and in 3 others blood was mixed with the motions, but I have no record of the condition of the rectum. Mr. Allingham has called attention to the frequent association of backward displacement of the uterus with hæmorrhoids.

There are two ways in which painful defæcation with backward displacement of the uterus may be explained, besides the effect of costive fæces on the bowel itself. One is that the straining which defæcation requires—especially when the motion is large and hard—forces the uterus down lower, and so aggravates for the time the pain habitually caused by the displacement. The other is, that if the uterus be congested and tender, hard fæcal lumps press on it as they pass, and so cause pain. Pain may, in some cases, be caused in both these ways.

There are many conditions beside retroversion and retroflexion of the uterus which may cause defæcation to be painful, and which may be present along with these displacements. It is possible that, in cases of displacement with painful defæcation, the accompaniment of one of these conditions may be the cause of the pain, and not the displacement. It is begging the question whether or not the displacement causes painful defæcation, to bring forward as evidence cases in which no other cause for the symptom was discovered; for if the displacement be not capable of rendering defæcation painful, there must in every case be some other cause, whether discovered or not.

The admitted causes of painful defæcation—such as hæmorrhoids, fissure, inflammatory conditions of the rectum and adjoining parts—occur both with and without backward displacement of the uterus. If backward displacement be really a cause of painful defæcation, we ought to find this symptom more frequent in a set of cases in all of which this displacement was present, than in a set from which this supposed cause of painful defæcation is excluded.

I have taken from my note-books a nearly equivalent number of cases, without any selection, except the exclusion of cases of backward displacement of the uterus. Out of 363 consecutive cases, in 40 I have no record as to the presence or absence of this symptom. There remain 323. Of these pain in defæcation was present in 130, or 40·2 per cent.; absent in 182, or 56·3 per cent.; occasionally present in 11, or 3·5 per cent. There is thus, among the cases of backward displacement of the uterus, an excess of cases with painful defæcation of about 4·5 per cent. Assuming that other causes of painful defæcation were present in the cases of backward displacement of the uterus with the same frequency as among the patients without displacements, this would give, out of the 45·7 per cent. of the patients with backward displacements who suffered from painful defæcation, 40·2 accounted for by causes other than the displacement; and 4·5, or about 1 case in 9, as the proportion in which the painful defæcation may be fairly considered due to the displacement alone.

3. *Painful Micturition.*

Some amount of scalding or burning pain in micturition is frequent in all sorts of disease of the pelvic organs. It would, therefore, be surprising were it not often present with backward displacement of the uterus.

In 287 of my cases I have notes as to whether micturition was or was not attended with pain.

In 111, or 38·6 per cent., micturition was said to be painful.
„ 176, or 61·4 „ it was not.

Among the cases there was one of cystitis, one of urethral caruncle, and one of retention of urine.

The numerous causes of painful micturition, like those of painful defæcation, occur both with and without backward displacement of the uterus. I have endeavoured to ascertain whether these displacements make micturition

painful, in the same way as that by which I have tested the question of painful defæcation, viz. by taking a nearly equal number of cases, without any selection except the exclusion of cases of backward displacement of the uterus.

I have examined my notes of 297 consecutive cases in which backward displacement of the uterus was not present, and in which it is recorded whether pain in micturition was present or absent.

In 112, or 37·7 per cent., micturition was said to be painful.
„ 185, or 62·3 „ it was not.

This proportion is almost exactly the same as that observed among the cases of backward displacement of the uterus.

I conclude, therefore, that backward displacement of the uterus does not cause micturition to be painful, and that the pain in micturition complained of in about two-fifths of such cases is due to accidentally concomitant conditions, and not to the displacement.

4. *Frequent Micturition.*

Frequent micturition is a common reflex effect of many influences acting on the pelvic organs. One of the most common examples of this is the bladder irritation consequent on the dragging on the bladder in prolapse. As backward displacement of the uterus is frequently an effect of prolapse, we should expect to find bladder irritation frequently present with backward displacement.

I have notes as to whether or not the patient, since the existence of the ailment for which she sought advice, had found herself obliged to pass water oftener than was usual with her before; in 289 cases of backward displacement of the uterus—

In 152, or 52·3 per cent., there was bladder irritation.
„ 137, or 47·7 „ there was not.

Bladder irritation was, therefore, present in the majority of the cases.

I have tested the question whether frequency of micturition is an effect, and not merely an accidental accompaniment, of backward displacement of the uterus, in the same way as the similar question relating to painful defæcation and painful micturition.

I have examined my notes of 312 consecutive cases (taken without any selection except the exclusion of cases of backward displacement of the uterus) in which I have records as to whether or not, since the illness, micturition had become more frequent than usual.

In 129, or 41·3 per cent., there was bladder irritation.
„ 183, or 58·7 „ there was not.

There is thus, among the cases of backward displacement of the uterus, an excess of cases with frequent micturition of about 11 per cent. Assuming that other causes of frequent micturition were present in the cases of backward displacement of the uterus with the same frequency as among patients without displacements, this would give, out of the 52·3 per cent. of the patients who suffered from backward displacement, 41·3 accounted for by causes other than the displacement, and 11, or about 1 in 5, as the proportion of cases in which the bladder irritation was accounted for by the displacement alone.

5. *Leucorrhœa.*

Leucorrhœa is often described as a symptom caused by backward displacement of the uterus. I have notes of the presence or absence of leucorrhœa in 256 cases of backward displacement.

In 153 cases, or 59·5 per cent., it was present.
„ 63 „ 24·6 „ „ absent.
„ 40 „ 15·9 „ „ occasional.

In 14 of the cases suffering from leucorrhœa there was pruritus. In 8 the discharge was said by the patient to be offensive. In 5 there were reasons for suspecting it to be gonorrhœal.

Leucorrhœa is a very common thing, and very various in its causes. To ascertain whether backward displacement of the uterus has any effect in producing leucorrhœa, I have followed the same plan as in the other symptoms previously considered. I have compared the cases of backward displacement of the uterus with a nearly equivalent number of cases, taken without any selection except the elimination of cases of backward displacement of the uterus. In the case of this symptom I have also eliminated cases of cancer, because this disease is also excluded from the cases of backward displacement, while it is a common disease, and one that also generally has leucorrhœa as a prominent symptom. I have examined my notes of 387 consecutive cases (backward displacement and cancer excepted). Among these I have it recorded whether leucorrhœa was present or absent in 222.

In 153 it was present.
„ 69 „ absent.

These numbers are so close to those displayed by the cases of backward displacement of the uterus, that I think they justify the inference that backward displacement of the uterus has no appreciable effect in the production of leucorrhœa.

6. *Pain in Sexual Intercourse.*

For obvious reasons I have not so full a record of the presence or absence of this local symptom as of the others. Some patients mentioned it without being asked, and some were asked about it. In one case it was the patient's only complaint; and in two others it was the chief complaint, the one which the patient first mentioned. Excepting in these cases I have no means of distinguishing patients who mentioned it from those who answered inquiry about it, and therefore I am unable to estimate the frequency of its presence as compared with its absence.

In 63 cases dyspareunia was present.
„ 10 „ „ „ absent.

If we assume that in the 331 patients who neither mentioned this symptom nor were questioned about it this kind of pain was absent, we have at least $\frac{1}{6}$ as the proportion in which it was present. The fact than in 73 who gave information, affirmative or negative, on this point, pain was absent in 10, gives $\frac{6}{7}$ as the maximum proportion in which it could have been present. The actual frequency of dyspareunia probably lies between these two extremes. As I am unable to be exact as to the proportion of cases in which this symptom is present in backward displacement of the uterus, I am unable to draw any comparison between this class of cases and patients in general.

Dr. RASCH asked if the 407 cases were pure, uncomplicated cases of retroversion and retroflexion. To estimate the practical value of Dr. Herman's statistics it was absolutely necessary to exclude all other causes producing the same symptoms. An answer to this question seemed to Dr. Rasch indispensable before one could discuss the paper.

Dr. HANDFIELD-JONES pointed out that the author of the paper, while tracing the connection of pain at various points with backward displacement of the uterus, had made no reference to the condition of the displaced organ. Thus the womb was often retroflexed in patients who never complained of either dyspareunia or painful defæcation, but in others, in whom the body of the womb was inflamed and acutely tender, retroflexion did give rise to great suffering during the passage of hard fæcal lumps downwards or during coitus. Again, the womb, when displaced backwards, often brought about prolapse of the ovaries, and these latter becoming enlarged and tender were the real cause of the pain complained of. It was not correct to state that the back pain of women suffering from debility and impaired nutrition was usually in the lumbar or dorsal region, while that depending on posterior uterine displacements was always over the sacrum, for in a large proportion of cases of aching muscles the pain was referred to the mid-sacral region.

Dr. CHAMPNEYS agreed with Dr. Herman's explanation of the frequency of pain on the left side, that the left side was "weaker" than the right. That this was not due to pelvic causes was proved by the frequency of other left-sided pains, and especially left submammary pain. Pain in the bowels was generally due to intestinal causes, all the pelvic viscera being weak and unhealthy together. The unimpregnated uterus could not conceivably exert any injurious pressure on either the

bowel or bladder. Its weight out of the body was about an ounce, and, as about half this was lost by the pressure of surrounding soft parts, it could only exercise a downward pressure of some half-ounce. The only other theory of pressure was that due to impaction. The conjugate of the pelvis was about four inches; the extreme length of the uterus not more than three; if flexed, still less, so that impaction was impossible. Moreover the impregnated uterus did not become impacted before the end of the third month. The immediate effect of bearing down was not to increase but to diminish retroversion and retroflexion, the centre of the pelvic diaphragm descending more than the sides; this was easily verified. Generally speaking, backward displacements were signs of descent. He was rather surprised to hear that catarrh was not common among patients with backward displacements. In his experience the association was very common, and both were signs of absence of tone in the pelvic soft parts. He had seen two cases a little while ago which illustrated this association. Two ladies from India had catarrh and descent with retroversion. After the application of two zinc-alum points, without rest in bed and without a pessary, the uterus had climbed up into its place and the backward displacement had gone. In truth, the same condition often resulted in descent with retroversion, catarrh of the cervix, and catarrh of the rectum. With respect to dyspareunia, this was a wide term, and there were at least two principal forms, one in which the pain was associated with spasm of the vaginal orifice—vaginismus,—the other due to deep tenderness, generally from some inflammation of or about the ovary or tube. In such a case there was often tenderness on pressing the uterus, which was not really tender itself, but pressed against the adjacent tender organ. It was often described as tenderness of the uterus, but incorrectly.

Dr. Gervis did not agree with the opinion that backward displacement of the uterus was but a stage of prolapsus, although unquestionably retroflexion without descent was of far less importance than when it occurred with it. In many cases of retroflexion without descent the symptoms were very slight. Speaking generally, he thought that flexions, if uncomplicated, were of but moderate importance, but if associated with cervical stenosis or endometritis they became of considerable importance. He further believed that in many of the cases where there was associated ovarian pain the pain was due to a subovaritis, whose starting-point was endometritis, and that this endometritis was, in its turn, due to the interference with normal menstruation induced by the flexion.

Dr. Herman said that in his opinion uncomplicated retroversion or retroflexion of the uterus caused no symptoms of any kind. Had the cases on which the paper was based not

been complicated, they would not have applied for treatment. Some years ago it was believed by many that every complication that existed along with a displaced uterus was the consequence of the displacement. Some had gone to the opposite extreme, and regarded displacement of the uterus backwards as being always a bagatelle, and the presence of symptoms with it merely a coincidence. He (Dr. Herman) had compiled this paper to help himself to a correct idea of the frequency with which backward displacement was really the cause of symptoms existing along with it. It was not possible to settle this question by reporting individual cases, because the interpretation of individual cases depended on the general principles previously adopted by the observer which he could not prevent biassing his judgment. Therefore he (Dr. Herman) had adopted the statistical method set forth in the paper. He did not accept the views put forth by Dr. Gervis, and would give two reasons for not doing so. First, if retention of menses was produced by flexion of the uterus, how was it that no one had ever yet produced a uterus dilated by the retained fluid? Second, if displacement backwards caused the ovaries to be tender by producing salpingitis and oöphoritis, how was it that (as the displacement was not unilateral) this state of things was produced three times as often in the left side as in the right?

NOTE SUPPLEMENTARY TO A PAPER READ BEFORE THE SOCIETY APRIL 2ND, 1890, ON "VAGINAL HYSTERECTOMY," GIVING THE SUBSEQUENT HISTORY OF THE CASES.

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(*Abstract.*)

IN this communication is given the subsequent history of the three patients whose cases were narrated in the author's paper on "Vaginal Hysterectomy," read April 2nd, 1890, and who were still living when the paper was read. Of these, one lived for two years and two months, one for a few days short of two years, and the third for a little over seventeen months. Two enjoyed perfect health until within a few weeks of their death. In each of these cases death resulted from intestinal obstruction, the cause of which in one case remains unknown; in the other it was pelvic adhesions, the only signs of recurrence being a single enlarged gland, and a small ulcer in the vaginal roof. In the third case the history showed restoration to fairly good health for six or eight months, then gradual failure for twelve months, and, finally, six months of absolute confinement to bed, death occurring from kidney disease, due apparently to implication of the bladder and ureters in the recurrent growth. The patients with columnar-celled carcinoma lived longer than the one in whom the disease was of the squamous-celled variety.

OF the four cases narrated in the above-named paper, one terminated fatally, as a result of the operation, while three recovered. As the three patients who survived the operation are now all dead, it appears to me that it is my duty to communicate to the Society such particulars as I

have been able to ascertain regarding their subsequent history.

Case 1, that of Mary K—, aged 46, the subject of columnar-celled carcinoma of the cervix, was reported in the paper as having remained well for eight months after the operation, and having then began to suffer from a recurrence in the tissues around the vaginal wound.

This patient died May 15th, 1891, having survived the operation for two years and two months. She enjoyed fairly good health for the first twelve months, the recurrent growth up to that time occasioning little or no inconvenience. On April 15th, 1890, she became an out-patient at the Homœopathic Hospital, under Dr. Burford. She attended there for some time, complaining of increasing local distress, chiefly in the form of burning pain, and ultimately, in December, 1890, she was taken into the hospital and remained as an indoor patient for a month. Dr. Burford tells me that "there was," during this time, "no bleeding of any account, or rectal or vesical fistulæ, although the whole upper vaginal tract was involved in the deposit. The chief troubles were subjective, and pain on sitting was the most marked of them."

On returning home she kept her bed almost continuously until the 1st May, 1891, when she was admitted into the Cancer Hospital at Brompton, where she died fifteen days subsequently. Her chief symptom when at Brompton was severe pain before and after micturition. The note of the post-mortem examination (kindly furnished me by Mr. Jessett) is as follows :—"Kidneys much enlarged; pelvis of both greatly dilated and thickened, and distended with fluid; kidney substance very pale; both ureters dilated. Return of disease in upper part of vagina, implicating bladder."

Case 2 was the fatal one.

Case 3, that of Amy S—, aged 43, was one of squamous-celled carcinoma of the cervix. The uterus was extirpated February 6th, 1890, and the patient survived the operation for seventeen months and ten days.

After leaving the hospital she completely lost her cachectic appearance, and for many months remained remarkably well. She regained her healthy colour and became stout and strong. The hæmorrhage never returned. One of the ligatures which had not come away when she left the hospital did so on May 22nd, 1890, three months and a half after the operation. The other had not come away on June 3rd, 1890, when she was examined for the first time after her discharge. There was then no sign of recurrence and very little thickening about the cicatrix.

The patient did not again present herself at the hospital until June 5th, 1891. She then complained of epigastric pain and vomiting, which had come on suddenly a month previously, and had continued ever since. The opportunity was taken for making a vaginal examination, although there had been no hæmorrhage or discharge of any kind. There was no evidence of local recurrence. The impression given to the finger was as though some smooth-walled viscus had fallen upon the wound, and, having become adherent, had closed it. The symptoms continuing, the patient was admitted as an indoor patient on June 26th. The loss of flesh that had taken place in the meantime was quite remarkable. She had become so altered as to be scarcely recognisable. It was now ascertained that there had been increasing difficulty with the bowels during the past ten weeks, up to which time they had acted perfectly. Since June 23rd there had been no action. Enemata failed to give relief, and on the 1st of July the vomiting became distinctly fæcal. An artificial anus was subsequently made in the small intestine, the sigmoid flexure being found empty and flaccid. But the patient did not survive the operation many days, death taking place on July 16th, 1891.

Unfortunately no post-mortem examination was permitted. It therefore remains uncertain whether the intestinal obstruction was the result of new growth or of pelvic adhesions connected with the first operation.

The last case (No. 4) was that of Emily S—, in whom the operation was performed February 27th, 1890, for columnar-celled carcinoma of the cervix. The patient survived the operation twenty-three months and a half, having had excellent health up to within a month of her death. On rising from bed on the morning of January 10th, 1892, she was seized with vomiting, which she ascribed to having eaten a tainted mutton chop the previous evening. The vomiting persisted, however, coming on every time she took food, of whatever kind, and she had constant pain in the umbilical and epigastric regions. On the first day of the attack the bowels did not act; on the second and third days they acted once; on the fourth and fifth days there was no action; on the sixth day she took castor oil, and the bowels acted once; on the seventh day she again took some castor oil, but it was immediately vomited, and there was no action of the bowels on that day or subsequently. In the meantime the patient was becoming rapidly emaciated, and on January 26th, when she was admitted as an in-patient, the alteration in her appearance was so great that she was scarcely recognisable. The abdomen was distended and tympanitic; the rectum contained some scybala. Enemata had the effect of emptying the rectum, but nothing more. A consultation was held with a view to surgical relief, and on January 28th Mr. Wm. Anderson made an incision, in the hope of being able to perform colotomy. The large intestine, however, was found collapsed, and he therefore secured a coil of the small intestine to the parietal peritoneum, opening the gut four days later. The pain and distension were thereby relieved, but the patient gradually sank, and died on the 11th of February, 1892.

Dr. Hawkins made a post-mortem examination, and has kindly furnished the following notes:

The body was much emaciated.

There was an artificial anus in the left groin, in the usual position of an inguinal colotomy wound.

The uterus and appendages had been at some previous

date removed, and the vagina was a cul-de-sac ending in a knot of dense cicatricial tissue, which formed part of the pelvic floor.

Adherent to this knot and to the adjacent posterior surface of the bladder were two inches of small intestine, this point being four feet above the cæcum ; the adhesion was very firm, the bowel (which was here bent twice acutely) had to be dissected away, and water could only just be forced through the point of obstruction at high pressure.

The artificial anus was seven and a half feet above the point of obstruction in the small intestine.

In the cicatricial tissue of the pelvic floor lay a solitary gland infiltrated with new growth ; in the upper end of the vagina was an ulcerated area having the size of a threepenny piece (of which the floor shows cancerous infiltration).

There was early hydronephrosis of the right kidney, owing to involvement of the right ureter in the pelvic scar-tissue.

There was no peritonitis and no peritonitic adhesion other than that described above as the cause of death. Other viscera were healthy.

The results may be summarised as follows :—Of the three patients, one survived the operation for two years and two months, one for a little short of two years, and the third for a little over seventeen months. The two patients who lived the longest were operated upon for columnar-celled carcinoma ; in the other the disease was of the squamous-celled variety. In two of the cases the patients were restored to complete health and a life of full activity until within a few weeks of their death,—that is, for a period in the one case of a year and three months, in the other of a year and ten months. In both these patients death resulted from intestinal obstruction. The cause of this in one case remains unknown. In the other it was the result of adhesions about the wound, the only signs of recurrence being a single enlarged gland and

a small ulcer in the vaginal roof. In the third case the operation resulted in fairly good health for six or eight months. The history then showed gradual failure for twelve months, and, finally, six months of absolute confinement to bed, death occurring from kidney disease, apparently the result of the implication of the bladder and ureters in the recurrent growth.

Dr. PLAYFAIR said that, observing Dr. Cullingworth's paper was to be read that evening, he had thought that it would be of interest to bring to the Society two uteri which he had extirpated for cancer within the past month, each of which exhibited points worthy of notice, and from which instructive lessons might be learnt. In his opinion the whole subject of the surgical treatment of this terrible disease was *sub judice*, and neither total extirpation nor supra-vaginal amputation could be considered, so far as their present experience went, as anything but very unsatisfactory procedures, affording the patient the chance of prolonging her life in comfort for a greater or less length of time, but which, so far as existing evidence went to show, did not give a reasonable hope of complete cure. The important point to settle was, which of these procedures afforded the patient the best chance for the future? He had operated in a large number of cases by supra-vaginal amputation, but sooner or later the disease had recurred in all. In one case five years had elapsed without the recurrence, but that was the longest time. In another case, three years after the operation, he detected a small nodule on the uterine stump, and thinking it looked suspiciously like a commencing recurrence, he proposed to excise it and cauterise with Paquelin's cautery. The patient, however, objected, and he heard no more of her for a year, when he was told that she was everywhere vaunted as an example of the complete removal of a cancer by the "faith cure," to which she had resorted. Probably he was wrong in supposing that the suspicious-looking nodule meant recurrence, and his operation was more successful than he supposed. If this patient were still alive, seven years must have elapsed since the original operation, but clearly the "faith cure" and not "supra-vaginal amputation" would get the credit. All his other cases had relapsed in a much shorter time. Nor was the immediate danger altogether a negligable quantity. He did not know of any reliable statistics on this point, but he observed that in a recent paper read at the Gynæcological Society advocating this procedure death had followed in two out of twenty-four cases, *i. e.* about 8 per cent. That represented an initial mortality but little less than that of total extirpation.

Now it must be admitted, he thought, that if from improved technique, &c., the mortality of total extirpation could be shown to be not materially greater than that of supra-vaginal amputation, it must be considered the most surgically correct and hopeful procedure. No surgeon in his senses would remove part of a cancerous organ if he could remove the whole of it without much more danger than a part. Would any surgeon, for example, remove parts of a cancerous breast instead of the whole? And why should the same rule not apply to the uterus? The question, therefore, to be decided seemed to him to be whether the safety of partial excision was so much greater than total as to make it preferable. So far as recent statistics went, the tendency seemed to show that the more thorough and surgically correct operation, unsatisfactory though it was, would come more and more into favour. One of the specimens he had to show bore on an important question. It had been argued by Dr. John Williams and others that in epithelial cancer of the cervix the tendency of the disease was to spread laterally on to the vaginal walls and not up into the uterus, and that they might therefore safely rely on supra-vaginal amputation. This had always seemed to him a dangerous doctrine. Now in the specimen shown the disease was apparently limited to the cervical portion, so far as naked-eye appearances went. Yet in the sections shown under the microscope, taken from near the fundus and right away from the apparently diseased textures, there were marked evidences of malignant infiltration, supposed by Mr. Lenthal Cheatle, who had been good enough to examine the specimen with his usual care and thoroughness, to be probably plugged lymphatics. Similar specimens had been shown by Olshausen and others, so that the theory that the epithelial variety of cancer could be safely considered to be limited to the cervix seemed untenable. This case was a typical example of the so-called "cauliflower excrescence," there being a sprouting mass about the size of an orange growing into the vagina, which was removed by a preliminary operation before the uterus was extirpated. The patient made a good recovery. In the other case the question of supra-vaginal extirpation did not arise, as the disease was limited to the cavity, the cervix being apparently healthy. The patient came from abroad a month before she was operated on, suffering from incessant hæmorrhages, and was even then much prostrated. The fungating mass in the cavity could be easily made out, and the uterus being quite mobile it was obvious that extirpation was the only possible procedure, and gave her the only chance. She refused, however, to submit to the operation. In a month she returned and begged to be operated on. The disease, however, had made much progress. She was in the last stage of debility from hæmorrhages, and the case was otherwise most unfavour-

able, as she had a narrow, undilated vagina, being a nullipara. He would have been driven now to refuse to operate, but she and her friends were now most anxious that she should have the chance, and as the uterus was still quite mobile it was undertaken. With much difficulty the broad ligaments were tied and the uterus separated, but it was then found impossible to remove the uterus through the vagina, partly because of its size and partly because of the softened tissue tearing under the volsellum when traction was attempted. It was found necessary to remove it by a supplementary laparotomy, and the patient only survived forty-eight hours. He did not know whether this had ever before been the case, but he now much regretted that he had not adhered to his original opinion, and refused to operate on the patient's return.

Dr. LEWERS said that a conclusion as to whether vaginal hysterectomy or supra-vaginal amputation of the cervix was the better operation for cancer of the cervix could only be arrived at by comparing the results, both as to mortality and recurrence, obtained by these operations in a large number of cases. He did not think Dr. Cullingworth's cases were at all encouraging to those who were the advocates of vaginal hysterectomy, either on the ground that it was no more dangerous than supra-vaginal amputation, or that it gave a better prospect as regarded non-recurrence. On the contrary, these cases made it evident that there was an appreciable risk of intestinal obstruction as a remote consequence of the operation. Referring to his own experience, which had formed the basis of a paper read last month before the Royal Medical and Chirurgical Society, Dr. Lewers said he had had 19 cases of the supra-vaginal amputation without a death, and 6 of these were free from recurrence for two years and upwards after the operation. Four cases out of the six were known to be well and free from recurrence at the present time, at intervals of nearly six years, nearly five years, three and a half years, and nearly three years respectively since the operation. The specimens from these cases and sections of them were shown before the Royal Medical and Chirurgical Society at the time the paper referred to was read. With respect to the body of the uterus being involved in some cases, as mentioned by Dr. Playfair, the point was that generally, when there was extension to the body of the uterus, there was also infiltration of the connective tissue round the cervix, so that such cases were unsuitable for either vaginal hysterectomy or supra-vaginal amputation. He was, however, of opinion that exceptionally a case of cancer of the cervix was met with for which vaginal hysterectomy was required. He had shown a specimen in point recently.

Dr. HEYWOOD SMITH said that Dr. Cullingworth had set a good example in bringing before the Society the closing notes

of these cases. He considered that the result in these cases told more in favour of the supra-vaginal amputation of the cervix, for in the two deaths out of the four that Dr. Cullingworth had related, the cause seemed due to obstruction resulting from adhesion of the bowel to the pelvic wound. This irregularity was avoided in the other operation. He therefore suggested whether it might not be advisable to draw down the wounded edges into the vagina, and so present a smooth rounded surface on the peritoneal aspect. It seemed to him (Dr. Smith) that, with the exception of cases of primary cancer of the fundus or body of the uterus, where, of course, total extirpation was the only proper method of procedure, wherever the uterus could be well drawn down, and if it could not such cases were not favourable for any operation, the supra-vaginal amputation of the cervix held out the best prospect of success at rather less risk to the patient.

Dr. Gervis thought Dr. Playfair took a too gloomy view of the prognosis in cases of supra-vaginal amputation of the cervix, especially where the operation was undertaken for an epithelioma which had sprung from the vaginal aspect of the cervix, or which, commencing in the cervical canal, had spread laterally rather than upward. He had had one such operation nine years ago, in which the patient was still alive and well, and others similarly successful after a lapse of six and seven years.

Dr. William Duncan pointed out that at the present moment there were no statistics showing the mortality in a large series of cases in which vaginal extirpation and supra-vaginal amputation of the uterus for cancer had been performed in this country, and that therefore we were not in a position to dogmatise on the subject. The best series of vaginal extirpations he knew was that of Professor Sinclair, of Manchester, whose mortality was certainly as small as that of supra-vaginal amputation when performed by the most skilful operators. He must confess to a change of opinion with regard to the two operations, to that he expressed in a paper on extirpation of the uterus read before the Obstetrical Society in 1885, and he thought that if the mortality of the operations could be brought to anywhere near the same level, that the total extirpation was the more scientific and surgical procedure, even though it were the more difficult.

Dr. Cullingworth, in reply, said that he had not expected his "Supplementary Note" to be elevated to the dignity of a paper, and made the basis of a discussion. He had had an opportunity, in his reply to the discussion on his "Hysterectomy" paper, of expounding his views as to the relative merits of supra-vaginal amputation of the cervix and total extirpation of the uterus in cases of cancer of the cervix, and he had seen no reason to modify the opinion he then expressed. Dr. Playfair's specimen was a very striking illustration of the

risk run by those who practised what might be called the minor operation, of leaving behind an unsuspected focus of cancer in the body of the uterus. No operator could have discovered during the operation that there was a nodule of disease high up in the body, inasmuch as it was separated from the diseased cervix by an interval of apparently sound tissue. So that if it had been his original intention to remove the cervix only, there would have been nothing to lead him to depart from that intention. The fact of even the occasional occurrence of concomitant disease in the body of the uterus furnished a strong argument in favour of the removal of the whole organ, even when the cervix alone appeared to be affected. Dr. Lewers had undoubtedly had singular success, and he was not surprised that with such gratifying results he remained a strong advocate of the partial operation. But the number of operators who agreed with him was steadily diminishing, and he had little doubt that total extirpation would come to be recognised as the more satisfactory method of dealing with the majority of those cases in which a radical operation of any kind was permissible. His own experience of the operation was, of course, much too limited to furnish an argument either on one side or the other. Few, however, as his cases were, he had felt that their value as clinical records would be increased by such a "Note" as had just been read, giving the after-history of the patients up to their death.

ANNUAL MEETING.

FEBRUARY 1ST, 1893.

J. WATT BLACK, M.D., President, in the Chair.

Present—62 Fellows and 6 visitors.

The President declared the Ballot open for one hour, and appointed Dr. Malins and Dr. Leith Napier as Scrutineers.

Books were presented by Dr. Priestley, Mr. J. Bland Sutton, and the Middlesex Hospital Staff.

W. Harrison Cripps, F.R.C.S.; Thomas H. Haydon, M.B., B.C., Cantab.; Walter W. Heelas, L.R.C.P.Lond.; Mark Robinson, L.R.C.P.Lond.; and Walter W. H. Tate, M.B.Lond., were admitted Fellows of the Society.

Henry Ferdinand Bernau, L.R.C.P.Lond. (E. Finchley); Henry St. George Boswell, M.B.Edin. (Saffron Walden); James Craig, M.D. (Beckenham); John Benjamin Hellier, M.D.Lond. (Leeds); Henry Laver, M.R.C.S. (Colchester); Herbert M. N. Milton, M.R.C.S. (Cairo); Harry Michie, M.B.Aber. (Nottingham); Frank Edward Nichol, M.A., M.B., B.C.Cantab. (Margate); William Kay Walls, M.B.Lond. (Manchester); Thomas J. Webster, M.R.C.S. (Merthyr Tydvil); Philip Henry Dunn, L.R.C.P.Lond. (Stevenage); and William Francis Umney, M.D.Lond. (Sydenham), were declared admitted.

The following gentlemen were elected Fellows of the Society:—John Henry Dauber, M.A.Oxon., L.R.C.P.Lond.; Thomas Watts Eden, M.D., C.M.Edin.; Sydney Nevill Harrison, M.B., B.C.Cantab.; Walter George Lowe,

M.D.Lond., F.R.C.S. (Burton-on-Trent); Ewan John Maclean, M.D., C.M.Edin.; Domingo Antonio de Montbrun, L.R.C.P.Lond. (Trinidad); Robert Milne Murray, M.B.Edin. (Edinburgh); Hugh James Moon Playfair, M.D.Lond.; and William Trethowan, M.B., C.M.Aber.

The following gentlemen were proposed for election :— William Betenson Betenson, L.R.C.P.Lond.; and John Jordan Harvey, L.R.C.P. & S.Edin. (Nottingham).

PAPILLOMATOUS OVARIAN CYSTOMA, REMOVED AFTER DOUBLE OVARIOTOMY FIFTEEN YEARS PREVIOUSLY.

By J. D. Malcolm, M.B., C.M.

Mr. Knowsley Thornton had performed double ovariotomy on the patient eleven years previously, removing two multilocular cystomata, which were adherent to each other, to the pelvic and to adjacent peritoneum, and had papillomatous growth both on their inner and outer surfaces. The operation performed by Mr. Malcolm was the removal of a multilocular cystoma with papillomatous growth on its inner surface only. There was nothing to distinguish this second operation from the removal of an ordinary non-adherent ovarian tumour extending deeply into the left broad ligament except the absence of the Fallopian tube. This was the more remarkable, not only because papilloma existed at both operations, but also because Mr. Thornton's operation had been one of the last performed by him without antiseptic precautions; drainage of the pelvis through the abdominal incision had been employed, the discharge had been offensive for many days, and the wound did not finally heal till some ligatures escaped several weeks later. Nevertheless there was no sign of adhesion

or of papilloma anywhere. The right broad ligament presented a rounded upper edge without ovary, tube, or any evidence of a pedicle.

Mr. Alban Doran observed that the case was a very clear instance of non-malignant papilloma. He had seen a few similar examples at the Samaritan Hospital. Yet he had noted at the same place instances where papillary growths were scattered all over the peritoneum, and closely resembled the growths in the non-malignant cases; nevertheless, recurrence and death within two years occurred. Pathology could not explain this phenomenon. Probably the non-malignant papillomata were simply exuberant warty growths, whilst the malignant were sarcomatous outgrowths assuming a papillary form. Mr. Doran did not think that this theory had been proved by the microscope.

Mr. Malcolm, in reply, said that his information respecting the first operation was received from Mr. Thornton, whose notes he had seen. In agreement with Mr. Thornton he presumed that the operation having been a very difficult one, some portion of the ovary had been left, and it was most interesting and important to know that a small piece of an ovary remaining in this way could give rise to an ovarian tumour. He remarked that the existence of a third ovary had been considered possible.

CASE OF ABORTION.

By W. S. A. Griffith, M.D.

Dr. Griffith showed a specimen from an abortion in the third month of pregnancy, in which the decidual cavity was closed and distended with blood and formed the larger part of the mass, from a healthy woman aged 30, 2-para.; this was her first miscarriage. Pregnancy commenced at the end of May, 1891, and ended on July 30th, 1891. From the position of the parts and their appearance it would appear as if the placental site was below the decidual cavity, and that had pregnancy continued the placenta would have been prævia.

SPONTANEOUS EXTRUSION OF A LARGE UTERINE FIBROID.

By W. S. A. Griffith, M.D.

This specimen was sent to him by Dr. Gilbertson, of Hitchin. It was a large uterine fibroid, weighing 1 lb. 10 oz., extruded spontaneously by the uterus, from a woman aged 43, who had suffered for two years from menorrhagia. Her last menstrual period was in November, 1892, when she suffered from retention of urine, needing the use of a catheter. On January 25th, 1893, she was seized with severe pains, like labour pains. Dr. Gilbertson found the tumour lying between the thighs, attached by a thin pedicle to the uterus; this was easily torn through. There was no further bleeding, and the patient made a good recovery.

LARGE ŒDEMATOUS FIBROID OF UTERUS, REMOVED BY ABDOMINAL HYSTERECTOMY.

By C. J. Cullingworth, M.D.

Dr. Cullingworth exhibited an extremely soft uterine fibroid, removed by abdominal section ten days previously from an unmarried lady, aged 41, who had suffered severely from dysmenorrhœa and menorrhagia. The mass removed, consisting of the body of the uterus as well as the tumour, weighed 9¼ lbs. The tumour was interstitial, with a sub-peritoneal projection at its summit and, at its lower extremity, a sub-mucous projection of conical shape, occupying the uterine cavity, and measuring 7½ inches in length on one side and 3½ inches on the opposite side. It contained no cysts, though its extremely œdematous condition had produced so much softening as to give the impression that it was partly cystic.

An interesting point in the case was that the patient had been under treatment in 1889 by Apostoli's electrical method for a period of eleven weeks, during which time she had nineteen applications.

The pedicle was treated extra-peritoneally. The patient had so far made a most satisfactory recovery.

Mr. Alban Doran asked if Dr. Cullingworth attributed the degeneration of the fibroid to the electrical treatment. Mr. Thornton once exhibited a uterine fibro-cyst before the Society ('Transactions,' vol. xxxi, 1889, p. 199) which had unsuccessfully been treated by electrolysis. The abdominal integuments were scarred, and the tumour, according to the patient's account, grew larger under the treatment. Other operators had expressed their belief that electrolysis encouraged cystic degeneration of fibroids.

Dr. Cullingworth, in reply to Mr. Doran, said he was not aware of any evidence to show that the electrical treatment was capable of producing myxomatous degeneration, and he did not at all wish to imply that the condition in which the tumour in this case was found was attributable to the treatment. There could be no doubt that powerful electrical currents did occasionally result in localised necrosis of the tumour, but that had not happened in this instance, notwithstanding that, according to the patient's statement, a current of the strength of 200 milliampères had sometimes been employed.

OSTEO-MALACIA CURED BY EXCISION OF THE OVARIES.

By Adolph Rasch, M.D.

The woman, aged 41, a native of Coblenz, who had lived in London for upwards of seven years. She had had three living children without difficulty. The disease commenced after her last confinement in November, 1890, the symptoms gradually increasing but rapidly getting worse after a new conception in October, 1891. She had kept her bed since Christmas, 1891, incapable of moving and in terrible pain. Dr. Rasch induced abortion on March 19th. Eight weeks after there was no abatement of the severe

osteo-malaceous symptoms. Both ovaries were excised on April 30th. The pains were less after three days, and quite gone after a month, when the patient got out of bed. She manages to do her household work now, and has not menstruated since the operation. The excised ovaries were of perfectly normal appearance. The neighbouring veins were congested at the operation.

The rami pubis formed a narrow beak, with difficulty admitting the exploring finger. The acetabula were pushed inwards, the sacrum and promontory forwards, the coccyx curved upwards. Dr. Rasch drew attention to the peculiar shape of the abdomen, resembling a very long ventral hernia in the middle line, due, in his opinion, to the altered line of action of the recti muscles, necessarily produced by the different direction of the pubes. A number of similar cases had been successfully treated in Germany since Prof. Fehling suggested and carried out castration as a remedy for this disease.

Report of Committee on Dr. Rasch's Case of Mollities Ossium, shown December 7th, 1892, *and described above.*

We examined the patient at St. Bartholomew's Hospital on December 13th, 1892. Her height is 4 feet 5½ inches. She is able to stand without assistance, and to walk a little with help and without pain. She states that she now suffers no pain when lying and sitting.

The deformity of the bones is confined chiefly to those of the thorax and pelvis, which present the usual characters. The pelvis is beaked, the outlet is so contracted that it only admits a finger with pain and difficulty, the rami of the pubes and ischium lying close together and almost parallel.

The measurements of the pelvis are as follows:

Interspinous	9½ inches.
Intercristal	10½ „
Conjugata ext. . . .	8 „

The true conjugate is probably of average length, but the available conjugate not more than half the proper length.

ADOLPH RASCH.
P. HORROCKS.
ROBERT BOXALL.
W. S. A. GRIFFITH.

Report of Committee on Dr. Wheaton's Specimen of Dermoid Tumour with Bony Girdle, shown January 4th, 1893 (p. 4).

The specimen consists of an irregular bony mass, $1\frac{3}{4}$ inches in length, $1\frac{3}{4}$ inches in breadth, and $1\frac{3}{8}$ inches in thickness. This mass of bone is partly covered by skin of variable thickness (in one part $\frac{3}{8}$ of an inch thick), from which is growing some light brown hair about 1 inch in length. Underlying the skin is a thick layer of subcutaneous fat. Projecting from the surface of the mass of bone are two teeth, apparently incisors; and on one side is a small cyst nearly $\frac{1}{2}$ an inch in diameter containing sebaceous material with hair growing from its walls. Attached by a slightly movable joint to one side of the principal mass is a piece of bone $\frac{3}{4}$ of an inch in length and $\frac{1}{4}$ of an inch in thickness, which forms with four other pieces of bone an oval ring, $1\frac{3}{4}$ inches in length and $1\frac{1}{2}$ inches in its transverse diameter. The ring is completed by two longer lateral pieces of bone, one of which bears a tooth, which appears to be an ill-developed canine; and two smaller flat distal pieces of bone, one of which has a small irregular plate projecting downwards from it. The pieces of bone forming this ring are loosely connected together by fibrous tissue, and show no synovial cavities. This

peculiar ring-shaped arrangement of bones appears to be accidental, and to possess no spinal morphological interest.

CHAS. J. CULLINGWORTH.
HERBERT R. SPENCER.
S. W. WHEATON.

Annual Meeting.

The audited balance-sheet of the Treasurer (Dr. Herman) was read. It was moved by Dr. Cullingworth, seconded by Dr. Spencer, and carried unanimously—"That the audited report of the Treasurer just read be received, adopted, and printed in the next volume of the 'Transactions,' and that the most cordial thanks of the Society be accorded to Dr. Herman for his valuable services during his term of office."

The reading of the report of the Honorary Librarian (Dr. Dakin) then followed, after which Dr. Hayes moved and Dr. Heywood Smith seconded—"That the report of the Honorary Librarian be received, adopted, and printed in the 'Transactions.'" This was carried.

Report of the Honorary Librarian.

I have the honour to report that the use of the Library has increased during the past year, as a larger number of the Fellows have availed themselves of it, both by reading in it and by borrowing books.

The additions during the year are made up as follows: 25 books and 4 tracts have been presented, making 26 volumes; and 20 books and 25 tracts have been purchased, making 22 volumes. The periodicals of the year have been bound into 55 volumes. These additions bring the total number of books, which last year was 4361, up to 4464.

Among the purchases I would call the attention of the Fellows to three important works:—One by Pinard and

BALANCE-SHEET OF THE OBSTETRICAL SOCIETY OF LONDON.

(Abstract of the Receipts and Expenditure for the year ending December 31st, 1892.)

1892.	RECEIPTS.	£	s.	d.
To balance:				
At Bank . . .	£275 14 7			
Petty Cash . . .	0 12 6			
		276	7	1
„ (1) 581 Annual Subscriptions at £1 1*s.*, realising . . .		610	1	6
„ (2) 1 Composition Fee at £10 10*s.*	10 10 0			
2 Ditto at £5 5*s.*	10 10 0			
		21	0	0
„ (3) Midwives' Examination Fees . .		284	0	6
„ (4) Sale of 'Transactions' and 'Rules for Infant Management' (Longmans)	66 10 4			
Do. do. (Society) .	0 3 0			
Sale of Duplicate Books .	0 6 0			
		66	19	4
„ (5) Interest on Consols . . .		48	5	4
Amount of Stock, 2¾ per Cent. Consols, standing in the names of the Trustees . . .	£1800 0 0			
		£1306	13	9

1892.	EXPENDITURE.	£	s.	d.
By (1) 'Transactions,' Vol. XXXIII, Printing, Lithography, Paper, Binding, Index, and delivery of Volume . . .		370	8	0
„ (2) Library: Books Purchased and Binding .		40	9	4
„ (3) Museum and Library: Rent . . .	£200 0 0			
Librarian, Salary and Commission . . .	190 15 3			
Repairs to Furniture, Cleaning, Coals, Electric Lighting, Fittings, &c. .	33 9 7			
		424	4	10
„ (4) General Meetings and other Expenses: Expenses of Meetings .	£32 4 1			
Stationery and Postage .	47 17 7			
		80	1	8
„ (5) Examination of Midwives: Fees to Examiners . .	£213 0 0			
General Expenses . .	44 17 11			
		257	17	11
„ (6) Extraordinary Expenses: Assistance during illness of Librarian .		14	4	6
„ (7) Banking Expenses: Commission, Cheque Book, &c. . .		0	8	7
„ (8) Balance at Bank		118	18	11
		£1306	13	9

Varnier, consisting of an atlas illustrating Obstetrical Anatomy by numerous frozen sections and dissections beautifully reproduced; and two by Webster, of Edinburgh, on Female Pelvic Anatomy and Ectopic Gestation respectively, both with admirably clear and artistic drawings.

Increased accommodation for books has been secured by the acquisition of a store-room adjacent to the Library. In this, back volumes of our own 'Transactions' and other books not immediately in use will be kept.

W. R. DAKIN.

The annual report of the Chairman of the Board for the Examination of Midwives was then read.

Report of the Chairman of the Board for the Examination of Midwives.

The number of candidates for the Society's certificate continues to increase.

During 1892, 289 candidates applied, of whom 252 passed, 34 failed, and 3 were absent from the whole or part of the examination.

From 1872 to 1891, 1388 candidates applied, of whom 1124 passed, 249 failed, and 15 were absent.

In all, 1677 candidates have offered themselves, of whom 1376 passed, 283 failed, and 18 were absent.

The total number of midwives on the register at the present time (including those who passed in January, 1893) is 1449, two names having been erased for misconduct.

It will be seen that the proportion of failures in the years previous to 1892 is about 17 per cent.; in 1892, about 11 per cent.

This is due to a general improvement in the practical knowledge of the candidates, the standard of the examination having certainly not been lowered. The schedule issued by the Society, specifying the subjects of the exa-

mination, has been, it is believed, of considerable use in this respect.

When it is remembered that the Society's certificate is merely an expression of opinion by the Society that the holder of it is competent to attend natural labour, and that no legislation has taken place, either for the purpose of preventing uncertified persons from calling themselves midwives, or even for registering midwives, it is plain that the work which the Society has voluntarily undertaken, and carried on for twenty-one years, is highly and increasingly appreciated by the midwives and by the public generally.

F. H. CHAMPNEYS.

Mr. ALBAN DORAN proposed and Dr. RUTHERFOORD seconded—"That the report of the Chairman of the Board for the Examination of Midwives be received, adopted, and printed in the 'Transactions.'"

The President then delivered the Annual Address.

ANNUAL ADDRESS.

GENTLEMEN,—For some little time back the number of Fellows of the Society has been declining to a certain extent. There is evidence, however, that the tide has now turned, for last month 24 new Fellows were elected, and 9 candidates were nominated for election. If we will bestir ourselves, we undoubtedly have it in our own power to maintain a constant succession of recruits, who will more than fill the places of those removed by death, resignation, and erasure.

The work of the Board for the Examination of Midwives steadily increases. Up to the end of last year 1376 midwives had received the certificate or diploma of the Society, the number added during the year having been 252. This evening a midwife, found guilty of malpraxis, has been removed from our list by the Council.

Our Library is continually growing, and at the end of 1892 it contained 4464 volumes. Within the last few days a large number of volumes—about 200, I believe—has been generously presented by Dr. Priestley.

Since the last Annual Meeting the Society has held nine ordinary meetings.

PAPERS.

At the March meeting Dr. Cullingworth, Dr. John Shaw, and Dr. Leith Napier each related a case of Cæsarean section performed on account of pelvic contraction. In Dr. Cullingworth's case the conjugate was estimated to be from $2\frac{1}{8}$ to $2\frac{1}{4}$ inches, in Dr. Shaw's it was $2\frac{1}{2}$ inches, and in Dr. Leith Napier's $2\frac{5}{8}$ inches. All the patients recovered. In the interesting discussion which followed the reading of the papers Dr. Murdoch Cameron, of Glasgow, who had at that time performed Cæsarean section fifteen times with two deaths, gave a graphic

description of his method of operating, and he suggested a plan for opening the uterus with as little loss of blood as possible. His plan, which has since been tried and found to answer perfectly, consists in placing an almost straightened Graily Hewitt pessary flat upon the uterine wall around the point of incision. He spoke strongly against the introduction of a drainage-tube through the cervix and vagina.

In May Dr. Lewers read a paper on "Six Cases of Craniotomy with Remarks on the Relative Position of Craniotomy and Cæsarean Section." The conjugate measured $2\frac{3}{8}$, $2\frac{3}{4}$ to $2\frac{7}{8}$, $3\frac{3}{8}$, $2\frac{3}{8}$, $2\frac{1}{2}$, and $2\frac{1}{2}$ inches respectively in his cases. The last two operations were performed upon the same patient. All the patients recovered. With one exception they had all been long in labour before the operation was performed. In the first four cases prolonged attempts at delivery had been made before Dr. Lewers saw them. In one version had been performed, in another the head had been perforated, and in a third the funis had been long prolapsed.

Dr. Lewers described an ingenious and simple means of measuring the true conjugate by the use of a thick elastic ring pessary, adjusted so as to lie exactly in the conjugate without being pressed out of shape. When a pessary has been found which exactly fits, its diameter gives the true conjugate.

Dr. Lewers contrasted the considerable maternal mortality still resulting from Cæsarean section with the extremely small maternal mortality following craniotomy. At the present day many obstetricians prefer Cæsarean section to craniotomy, when the conjugate is $2\frac{1}{2}$ inches only. The question is a complex one, involving considerations of medical science and art, of ethics and of sentiment. In view of the constantly diminishing mortality from Cæsarean section, and the increasing aversion from the use of fœticide as a therapeutic measure, I am disposed to think that the time is approaching when obstetricians will no longer thrust the perforator into the head of a living and uninjured

fœtus, unless the surrounding conditions are unfavourable for the Cæsarean section, or consent to perform it is refused.

In June Mr. Lawson Tait read the history of "A Case of Ectopic Pregnancy, in which the Fœtus seems to have been developed to the Full Time in the Peritoneal Cavity, still retaining its Amniotic Covering." The placenta was wholly contained in the right Fallopian tube, which formed a smooth globular mass about the size of a cocoa-nut. The case was described by Mr. Tait as unique. The liquor amnii had entirely disappeared.

At the same meeting Mr. Lawson Tait described "Two Cases of Hysterectomy." In the first case Mr. Tait had removed the appendages three years and five months previously on account of a large multi-nodular myoma causing profuse menstruation. Two years after the operation the tumour was found to have nearly disappeared, and there had been no menstruation since the operation. Subsequently metrorrhagia set in and a globular even tumour was found. Mr. Tait then performed hysterectomy, and found the tumour to be a large, ovoid, soft, œdematous myoma. The multi-nodular myoma presented indistinct traces only. The inference drawn was that while multi-nodular myoma is a disease of menstrual life, the soft œdematous myoma is not so, and that the latter is liable to resist the removal of the appendages. In the second case of hysterectomy the tumour grew from the endometrium.

At the same meeting Mr. Lawson Tait and Dr. Christopher Martin read a "Note on the Growth of the Placenta after Death of the Fœtus in Ectopic Gestation." On opening the abdomen in a case of ruptured tubal gestation Mr. Tait found the left Fallopian tube to be the seat of the pregnancy. The tube when removed had the size of a large orange. The greater part of the mass was composed of placental tissue. The fœtus was less than an inch in length. It is, I think, impossible to resist the inference that the placenta must have continued to grow after the death of the fœtus.

In July Dr. Herman read a paper "On Menstruation in Cases of Backward Displacement of Uterus." In it he followed up his paper of 1882 on the relation between backward displacement of the uterus and painful menstruation, and that of 1891 on the relation between backward displacement of the uterus and sterility and abortion. In the present paper he based his conclusions on 388 cases taken without selection from the out-patient department of the London Hospital. The general result was, that in about 40 per cent. of those who were menstruating the flow had increased. Assuming that in patients generally, apart from cases of cancer and of fibroids, there is increased flow in about 30 per cent., he concluded that in about 10 per cent. of the cases of backward displacement the displacement caused excess. As to pain, his conclusion was that while about two-fifths of women generally menstruate without pain, the proportion of women with backward displacement of the uterus who menstruate without pain is about one-fifth only.

Last month Dr. Herman read a paper "On the Frequency of the Local Symptoms associated with Backward Displacement of the Uterus." The paper was based on an analysis of 407 cases of backward displacement. The author found that chronic pain of some kind was present in nine-tenths of the cases of backward displacement of the uterus. The pain was most common in the back, generally in the sacral region, and next most commonly it consisted in sensations of descent and of unilateral pain. The cases of left-sided pain outnumbered those of right-sided pain in the proportion of three to one. Dr. Herman ingeniously accounted for the greater frequency of left-sided pain by the hypothesis that the left side is weaker than the right. Pain in defæcation was present in less than half the causes. The author attributed the pain to the displacement in about one in nine. He found bladder-irritation, as shown by increased frequency of micturition, attributable to the displacement as he believed, in one in five. Dyspareunia was present in at least one-sixth, and

absent in at least one-seventh. Backward displacement had no appreciable effect in causing painful micturition. Leucorrhœa was not more common in those who had backward displacement than in those who had not.

The inquiry undertaken by Dr. Herman into the symptomatology of backward displacement of the uterus is one of great importance and of great difficulty. Dr. Herman has adopted one of the few methods open to the investigator, and has pursued it with his usual thoroughness. That backward displacements of the uterus sometimes cause symptoms there can be no doubt. That Dr. Herman's numerical conclusions as to causation of symptoms are warranted by his cases is not so certain. It would, I think, require to be shown that other recognised causes of morbid symptoms, such as previous child-bearing or abortion, sub-involution, laxity of tissues, and antecedent pelvic inflammation are proportionately as often present where there is not backward displacement of the uterus as where there is. Otherwise it seems arbitrary to select the displacement as the cause of the symptoms. In any case Dr. Herman's papers will possess an enduring value as laying the foundation of the inquiry.

In July Mr. Meredith read a paper on "Two Cases of Double Ovariotomy during Pregnancy." One patient was a primipara and the other a multipara. The operation was successful in both cases. The first was operated upon in the third month of pregnancy. She was subsequently delivered of a well-developed boy at the full term of gestation. The second was also operated upon in the third month of pregnancy. She likewise was delivered of a living child at term.

At the October meeting Dr. Cullingworth read a paper on "The Value of Abdominal Section in certain cases of Pelvic Peritonitis, based on a Personal Experience of Fifty Cases." In 20 of the cases there was suppurating salpingitis, and in 12 non-suppurating salpingitis. Six of the latter were complicated with suppurating ovarian cyst, 2 with non-suppurating ovarian cyst, 1 with double

hæmatocele, and 1 with hæmatosalpinx and hæmorrhagic ovarian cyst. Two of the 12 were uncomplicated cases of salpingitis. The remaining 18 cases of abdominal section included 3 of pelvic abscess the seat of which was undetermined, 2 of tubercular disease of the Fallopian tubes, 1 of tubercular abscess in the abdominal wall with tubercular glands in the pelvis and miliary tubercle of the peritoneum, 3 of broad-ligament cysts, 1 of retro-peritoneal cysts with abscesses in the walls, 2 of hæmatocele, 3 of hæmatosalpinx with hæmatocele, 1 of hæmatoma of the broad ligament, 1 of encysted peritonitic effusion, and 1 of retroflexed uterus with fibroids. Nine of the patients died, giving a mortality of 18 per cent. A sinus existed in 6 of the cases when the patients left the hospital. In 4 cases a hernia occurred in the line of incision. In 12 of the 30 cases in which suppuration was present, the temperature was absolutely normal before the operation. Dr. Cullingworth called special attention to the unreliability of the temperature, therefore, as a sign of the existence of suppuration. He summarised his views in a series of fourteen propositions. The paper gave rise to an animated discussion, which was continued at the November meeting, and which brought out sharp differences of opinion. In his able reply the author fully met, I think, most of the objections urged against the position which he had taken up. To my mind he made out a clear case for the performance of abdominal section in many instances of recurrent pelvic peritonitis. The fact that the operation brought to light no fewer than 13 cases of unsuspected suppurating ovarian cyst, and 13 other cases of suppurating salpingitis, seems to me conclusive on that point. His sixth proposition, which says, "It is safer to attack cases of pelvic suppuration from above than from below," appears to me to be too absolute and to require qualification.

At the December meeting Drs. F. J. McCann and W. A. Turner read a paper "On the Occurrence of Sugar in the Urine during the Puerperal State." They had inves-

tigated a series of one hundred cases, and had examined 1400 samples of urine, and they stated the results. They concluded that sugar is present in the urine of all women during lactation at some period; that in the majority of cases the largest amount occurs on the fourth and fifth days after parturition; that the amount of sugar depends on the condition of the breasts, the quantity and quality of the milk, and the suckling of the child; that when lactation is diminished or suppressed the amount of sugar diminishes or disappears; and that, when the production and exhaustion of the milk are equal, the amount of sugar is small. The average quantity found was 1½ grains per ounce. It was assumed that the sugar was lactose. Reasonable as that assumption is, it would be well if the point were cleared up.

At the same meeting Dr. W. S. A. Griffith read notes of a case of galactorrhœa occurring during a first pregnancy. The flow of milk continued during the whole time of gestation, and reached a pint daily. It was not materially reduced by treatment.

At the meeting of last month, after the reading of Dr. Herman's paper already referred to, Dr. Cullingworth read a "Note Supplementary to a Paper read before the Society, April 2nd, 1890, on Vaginal Hysterectomy, giving the Subsequent History of the Cases." In the previous paper he had described four cases of total extirpation of the uterus *per vaginam*, two of which were cases of squamous-celled carcinoma of the *portio vaginalis*, and two of columnar-celled carcinoma of the cervix. Three of the patients recovered from the operation, and one died on the third day. In his "Note" now read, Dr. Cullingworth stated that the three patients who had recovered from the operation had all died subsequently. One survived the operation two years and two months, one two years except a few days, and the third a little over seventeen months. In two the cause of death was intestinal obstruction. In the third the cause of death was kidney-disease, due apparently to the implication of the bladder and ureters in a

recurrent growth. These three cases have less bearing than they seem to have on the question of the comparative advantages of vaginal hysterectomy and supra-vaginal amputation of the cervix, for in two of them the disease had passed the os internum before Dr. Cullingworth operated, as will be found on reference to his original paper.

Specimens.

Many specimens of interest and value were exhibited. The following is a list of them :

Dr. W. Duncan showed the uterus, with the kidneys and ureters, from a case of Cæsarean section, Dr. Amand Routh a ruptured uterus, and Dr. Rutherfoord the uterus of a recently delivered cat.

Dr. Boxall showed placentæ from two cases of placenta prævia, one marginal and the other complete, and Dr. Leith Napier a fœtus of four months development, contained within an unruptured amnial sac, with placenta prævia attached.

Dr. W. Duncan showed a knitting-needle nine inches long, which an unmarried girl, six months pregnant, had thrust through her umbilicus into the uterus in order to procure abortion.

Specimens removed by operation from two cases of tubal gestation were shown by Dr. Cullingworth, and from one case each by Dr. Malins, Dr. Aust Lawrence, and Mr. Bland Sutton. In one of Dr. Cullingworth's cases the sac was unruptured. Dr. Cullingworth showed also a hæmatosalpinx, in which the blood was contained in a pouch in the wall of the tube, and in which the clinical symptoms had pointed to tubal gestation.

A dilated uterus and vagina was shown by Mr. McAdam Eccles.

Dr. Leith Napier showed two specimens of uterine fibro-myoma, and Dr. Wheaton, Dr. Cullingworth, and Dr. Handfield-Jones, one each. One of Dr. Napier's was a large multiple fibro-myoma removed by hysterectomy ; the other was undergoing myxomatous degeneration. The

specimen shown by Dr. Handfield-Jones was calcified. Dr. Cullingworth's was a myoma of the posterior wall of the cervix, two and a half inches in diameter, removed by enucleation *per vaginam*. Dr. Wheaton exhibited sections showing micrococci from a large decomposing fibro-myoma removed by abdominal hysterectomy. The uterine sound had been passed, and might have introduced micrococci.

Cancerous uteri removed by vaginal hysterectomy were shown by Dr. Horrocks, Dr. A. Routh, Dr. Cullingworth, Dr. Lewers, and Dr. Playfair. Dr. A. Routh's and Dr. Lewers's specimens were examples of cancer of the body. In Dr. Cullingworth's, which was a case of squamous-celled carcinoma of the cervix, the lowest quarter of an inch of the body was diseased, whilst the mucous membrane on the vaginal side of the os was not at all involved. In Dr. Playfair's specimen, which was exhibited in the discussion on Dr. Cullingworth's "Note on the Subsequent History of Three Cases of Vaginal Hysterectomy," the disease was limited to the cervix so far as naked eye appearances showed, but malignant infiltration was found on microscopic examination of a section near the fundus.

Dr. Galabin showed a dermoid ovarian cyst, and Dr. Wheaton bony parts removed from a dermoid ovarian tumour.

Dr. Des Vœux showed a specimen of double ovarian apoplexy from a case of acute peritonitis resulting from a ruptured gastric ulcer, in a girl of twenty-three years of age.

Mr. Alban Doran showed a papillomatous cyst of either ovary, which had been associated with profuse ascitic effusion, and which he had removed by operation; Dr. Lewers a double ovarian tumour with papillomatous growths, also removed by operation; and Mr. Bland Sutton an "ovarian hydrocele" containing papillomata, which had been removed by operation by Mr. Henry Morris.

Dr. Rasch showed the ovaries from a woman who was present in an adjoining room, and who was said to be cured of osteomalacia by oöphorectomy. A committee was appointed to investigate this interesting case.

Dr. Leith Napier exhibited the ovaries from a case of double oöphorectomy, and also a small multilocular ovarian cyst and enlarged tube removed by abdominal section. In the latter case the patient became pregnant within two months of the operation.

Dr. Rutherfoord showed microscopical sections from a solid fibroma of the ovary.

Dr. Handfield-Jones showed a tubo-ovarian cyst in process of formation removed by operation.

Dr. Cullingworth showed three specimens of pyosalpinx removed by abdominal section.

Dr. Leith Napier showed a right-sided parovarian cyst distended with blood, with the right ovary and Fallopian tube, removed by operation. The cyst had undergone axial rotation.

Dr. Wheaton showed microscopic sections of the uterine mucous membrane of an infant suffering from uterine hæmorrhage, which had taken place into the superficial layers of the uterine mucous membrane.

Dr. Wheaton showed also a cast of a bilateral cephalhæmatoma.

The year was unusually rich in specimens of malformation. Dr. Handfield-Jones showed an acephalous acardiac fœtus; Dr. A. Routh, a fœtus with spina bifida, and also with extroversion of the abdominal viscera, retro-latero-flexion, and many pelvic abnormalites; and Dr. Wheaton, an umbilical tumour formed by prolapse of Meckel's diverticulum in an infant. Dr. Arthur E. Giles showed a malformation of the rectum and bladder, with imperforate anus and deformed feet, from a new-born child which had breathed once or twice. Both kidneys and both ureters were absent, as was also the right hypogastric artery. Dr. Giles showed also a case of congenital diaphragmatic hernia, in which the whole of the small intestine, the ascending colon, the vermiform appendix, and the right supra-renal capsule had passed into the thorax. The right lung was atrophied, especially the lower lobe.

Instruments.

A self-retaining speculum and various needles were shown by Dr. Leith Napier, and needles for vaginal hysterectomy by Dr. Playfair. A pair of midwifery forceps and a uterine sound designed for securing asepsis were shown by Dr. Horrocks. They were made entirely of metal, and were free from roughened surfaces and stamped marks, not having even the maker's name impressed. A transfusion apparatus, intended for the intravenous injection of saline fluids, was also exhibited by Dr. Horrocks. It consisted of a cannula for the vein, a piece of tubing, and a funnel. The funnel was in the form of a glass syringe, with a plunger, so that if necessary the fluid could be forced into the vein.

During the year 1892 the Society lost by death, so far as is at present known, eleven ordinary Fellows. Before speaking of them I must make mention of Dr. Cairns Wicks, of Newcastle-on-Tyne, who died in the previous year, but whose death was not ascertained by us until a few weeks ago.

Dr. William Cairns Wicks.

William Cairns Wicks died in February, 1891, at the age of forty. He had been a Fellow of this Society since 1883. He studied medicine at the University of Edinburgh. He became L.R.C.P.Edin. in 1873, and M.B.Edin. and C.M. Edin. in 1874. At the time of his death he was Medical Officer to the North of England Commercial Travellers' Association, and Medical Referee to the Union and to the Northern Accident Insurance Companies. He was formerly Senior Physician to the Newcastle-on-Tyne Hospital for Children, Medical Officer to the Newcastle-on-Tyne Throat and Ear Hospital, Honorary Physician to the Newcastle-on-Tyne Dispensary, and House Surgeon to the Dumfries and Galloway Royal Infirmary. He published in 'The British Medical Journal' for 1878 a case of "Empyema in a Child successfully treated by Incision and Drainage-tube," and in 'The Lancet' for 1880 an article on "Foreign Bodies swallowed by Children."

John Lucas Worship.

John Lucas Worship, of Riverhead, Sevenoaks, was one of the Original Fellows of this Society. He was a Member of Council from 1875 to 1877, and he was a Vice-President from 1883 to 1885. For many years he was an active Fellow of the Society, and on several occasions he reported cases and made remarks in discussion.

He was born on October 31st, 1824, at Mendlesham, Suffolk, and he was the eldest son of the Rev. John Lucas Worship, Rector of Stokesby, near Great Yarmouth. After serving for three years as apprentice to Messrs. Johnson and Master, of Norwich, and being a pupil of the Norfolk and Norwich Hospital, he entered at St. Bartholomew's Hospital. He became M.R.C.S.Eng. and L.S.A. in 1847. He commenced practice at Riverhead, Sevenoaks, in 1848, and he continued to practise there until 1891, when his health failed. He died at Manor House, Riverhead, on January 21st, 1892, at the age of sixty-seven.

He acquired an immense practice, extending over Riverhead and Sevenoaks and many parishes around. A few weeks before his death he stated to a friend of his and mine that during a period of thirty-three years he had not taken more than ten days' holiday, and that he had killed himself with overwork.

He was a skilful surgical operator, and was celebrated as such in his own neighbourhood.

He took an active interest in Freemasonry. He was one of the first members of the Knole Lodge of Freemasons, and he became a Past-Master of that Lodge. He was also one of the founders of the Sevenoaks Horticultural Society.

He was a man of decided ability, of sterling worth, and of a most kindly disposition, which he was careful to hide behind a somewhat brusque manner. He is described in a local paper as beloved by the rich, and a kind and generous friend to the poor.

Shortly before his death he was the recipient of a handsome testimonial from his friends and former patients.

He was twice married, and he is survived by his second wife and by three sons and six daughters.

Sir James Paget has characteristically favoured me with the following sympathetic reminiscences of Mr. Worship :—"I gladly send you some of my recollections of Mr. Worship. He was the son of a clergyman in Norfolk, a member of a good family. He entered as a pupil at St. Bartholomew's Hospital in 1844, after serving his apprenticeship with one of the surgeons of the Norfolk and Norwich Hospital, I think Mr. Johnson. At St. Bartholomew's he resided in the College, which had been established in the year before his entry, and he worked steadily, though not ardently, or as with any love of study or ambition for success. But having passed the usual examinations in the due time and entered on practice at Riverhead, near Sevenoaks, his whole mind in relation to his profession seemed to change. The responsibilities of practice were so keenly felt by him that it would have been hard to find one more earnest and laborious than he became. He was constantly at work, watchful, and careful, never self-satisfied, always striving to do for every case all the good that he could gain the power of doing. And thus he went on to the last, overworking, but never yielding to fatigue or the threatenings of serious illness. And he gained a just success, not only in a wide range of practice, but in the esteem and confidence of his patients, and in the admiration of many old fellow-pupils and teachers, among whom he enjoyed a life-long friendship."

Professor John Bassett.

John Bassett died at his residence in Hamstead Road, Handsworth, near Birmingham, on January 25th, 1892, at the age of sixty-six. He received his medical education at Guy's Hospital, where he entered in 1843. He became M.R.C.S.Eng. and L.S.A. in 1846, and M.D.St.And. in 1873. He was appointed House Surgeon to the Lying-in

Hospital at Birmingham in 1846, and he afterwards settled in practice at Hockley, Birmingham.

He was appointed Lecturer on Materia Medica at Sydenham College on its foundation. He gave up the chair of Materia Medica in 1868, when Sydenham College was amalgamated with Queen's College, and he was then appointed joint Professor of Midwifery in Queen's College. He resigned the appointment in 1887 in consequence of failing health.

He was noted for his unselfish character, and for his devotion to his duty as a teacher and a practitioner.

In 1879 he delivered the Ingleby Lectures, taking as his subject the "Pathology of Pregnancy." The lectures were published in the 'Birmingham Medical Review' for 1879, pp. 243 and 356.

He became a Fellow of this Society in 1866. He was a Member of the Council in 1874—76, and a Vice-President in 1880–82. In 1872 he communicated to the Society a paper on "Cases in Practice;" in 1874 a paper "On the Propriety of administering Iron during Pregnancy as a Preventive of Post-partum Hæmorrhage;" in 1877 he related "A Case of General Dropsy in a Fœtus with Hypertrophy of the Placenta;" in 1879 he took part in the discussion on the use of the forceps; and in 1881 Dr. Galabin exhibited for him the placenta from a case of triplets, and a fœtus with the placenta adhering to the cerebral membranes.

Dr. Bassett was twice married, and he left a widow and two daughters.

George Arthur Pratt.

George Arthur Pratt, of Wolverhampton, died on February 2nd, 1892, at the age of twenty-nine. He was elected a Fellow of this Society in 1888. He was educated at University College, London, and became M.R.C.S.Eng. in 1885, and L.S.A. in 1887. He appears to have been a man of promise, for he had held the appointments of House Surgeon to the Radcliffe Infirmary, Oxford, of House

Physician to the General Lying-in Hospital, London, and of House Surgeon and Senior Obstetric Assistant at University College Hospital, London.

Dr. John William Taylor.

John William Taylor became a Fellow of this Society in 1871. He was Honorary Local Secretary of the Society at Scarborough.

He was born at Hull in 1837. He died suddenly on February 15th, 1892, at the age of fifty-four. He studied medicine in the University of Edinburgh, and in Surgeons' Hall, Edinburgh. He took the degree of M.D. at St. Andrew's in 1862. He became M.R.C.S.Eng. and L.S.A. in 1863. He took the Bachelorship of Science (Public Health) Edin. in 1876, and the Doctorship in 1877. After completing his medical curriculum he became private assistant to Dr. Patrick Heron Watson, of Edinburgh. He went afterwards to Cardiff, Farnham, and Malton, and finally settled in Scarborough in 1865.

He was Examiner in Medical Jurisprudence and in Public Health in the University of Edinburgh. He was Medical Officer of Health to the North Riding of Yorkshire, and to the Scarborough Union District. He was Consulting Surgeon to the Scarborough Hospital and Dispensary, Consulting Medical Officer to the Royal Northern Sea-Bathing Infirmary, and Examining Surgeon to the Scarborough School Board.

He took a great interest in sanitary reforms, and was a Fellow of the Sanitary Institute of Great Britain. It is largely owing to his efforts that the town of Scarborough enjoys its present salubrity. As a sanitary expert he was appointed to inquire into an outbreak of typhoid fever at Malton, and into an outbreak of smallpox at Darenth. He took an active part in the volunteer movement, and he was Brigade-Surgeon-Lieutenant-Colonel, Volunteer Medical Staff.

He was a man of unusual ability and energy, and he

was widely respected and trusted. He was a Justice of the Peace for the North Riding.

He was a Freemason and a cremationist. His body was cremated at Woking. He leaves a widow, one son, and three daughters.

John Powdrell.

John Powdrell was born on January 2nd, 1838, at Farndon, near Chester. He died from disease of the liver at his residence in the Euston Road, London, where he had practised for many years, on May 19th, 1892, at the age of fifty-four. He was a twin, and the fifth son of Richard Powdrell, of Farndon. An ancestor of his, Richard Penderel, of Boscobel, took part in the concealment of Charles II in the oak at Boscobel, in 1651, after the battle of Worcester.

After studying medicine at St. Bartholomew's Hospital he became M.R.C.S.Eng. and L.S.A. in 1864. He joined this Society in 1875. He was Surgeon to several Friendly Societies. He was a staunch Conservative and an enthusiastic Freemason. He published in the 'Lancet' for 1868 a "Case of Dislocation of the Hip-joint in a Child six months old."

He married, in June, 1891, Miss Elizabeth Turner Booth, eldest daughter of the late J. Gregory Booth, M.R.C.S.Eng. He left a widow but no child.

Dr. Peter Lodwick Burchell.

Peter Lodwick Burchell was the only son of Mr. Peter Lodwick Burchell, of North Shoebury, Essex, and he was born there on September 10th, 1817. He died on July 5th, 1892, at the age of seventy-four, at Delamers, Bradwell-on-Sea, Essex, where he had resided for three years. He was educated at Mr. May's School at Tottenham, and at Rochford. He was apprenticed to Mr. Tom Tomlinson, of Maldon, Essex, at the age of sixteen.

He studied medicine at the Westminster Hospital, where he showed special proficiency in anatomy, and where he was in consequence appointed Demonstrator of Anatomy

after he obtained the Diploma of Membership of the Royal College of Surgeons of England.

He became M.R.C.S.Eng. in 1839, L.S.A. in 1840, F.R.C.S.Eng. in 1849, and M.B.Lond. in 1851. When he became a Member of the Royal College of Surgeons the higher grade of Fellow had not been instituted. When that grade was instituted in 1843 he was legally entitled to an *ad eundem* admission to it, but he would not take the diploma on such terms, and therefore he submitted himself to examination instead.

He joined the Society in 1877, and was a Member of the Council in 1882–4, a Member of the Board for the Examination of Midwives in 1884–7, and a Vice-President in 1885–7. He frequently attended the meetings of the Society, and in 1882 he read a short paper on "Turning in Cases of Contracted Brim." On the Council and on the Examination Board he proved himself a man of strong sense and a most agreeable colleague.

He was formerly one of the most active members of the Hunterian Society, which he joined in 1848. He was on its Council for many years. He was Hunterian Orator in 1878 and President in 1881. He gave as his Oration "A Brief Sketch of the History of Medicine."

He published a contribution "On Polypus in the Uterus" in the 'Lancet' for 1841; one on the "Use of Chloroform in a Difficult Case of Parturition" in the 'Lancet' for 1848; and a "Case of Strangulated Femoral Hernia treated successfully by Mr. Gay's Operation" in the 'Medical Times' for 1849.

He was Surgeon-Accoucheur to the City of London Lying-in Hospital for fifteen years, from 1871 to 1886, and to the Royal Maternity Charity for twelve years. He was Surgeon to the G Division of the Metropolitan Police. He had in the east and north-east of London a well-merited reputation for obstetrical skill, and he was frequently called in by the medical practitioners of his neighbourhood to give assistance in difficult obstetrical cases.

He was three times married. Three sons, one of whom

is in the medical profession, and one daughter, all by his second wife, survive him. His third wife, to whom he was married in 1885, also survives him. She was a daughter of the late Mr. William Webber, F.R.C.S.

Frederick William Salzmann.

Frederick William Salzmann, of Brighton, died with symptoms of gastric ulcer on August 31st, 1892, at the age of forty-seven. He had long suffered from dyspepsia.

He joined the Society in 1875, and he was our Honorary Local Secretary at Brighton.

He received his medical education at the Sussex County Hospital and at Guy's Hospital, which he entered in 1862. He became M.R.C.S.Eng. and L.S.A. in 1866. He was afterwards appointed House Surgeon to the Sussex County Hospital and to the Brighton and Hove Lying-in Institution. He was Consulting Surgeon to the latter Institution at the time of his death, and also to the Brighton and Hove Dental Hospital. He was Surgeon to St. Mary's Hall, and Medical Referee to the Brighton High School for Girls.

He was one of the Vice-Presidents of the Obstetric Section of the British Medical Association at the Annual Meeting at Brighton in 1886. I am indebted for the following note to Mr. Alban Doran, who was one of the Honorary Secretaries of the Section :—"In August, 1886, Mr. Salzmann was Vice-President of the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association held that year at Brighton. He distinguished himself by his hospitality to his colleagues in the Section, of which he was the only local representative, so that the hard work of organisation fell to a great extent upon himself."

He was President of the Brighton and Sussex Medico-Chirurgical Society in the year 1887–8.

In 1870 he entered into partnership with his brother-in-law, Mr. John Newnham Winter. He had a large practice, and was devoted to the interests of his patients.

His comparatively early death was widely and deeply regretted. He was a man of literary tastes, and he often came to London, where he was well known to many members of the medical profession.

Dr. Henry Charles Andrews.

Henry Charles Andrews joined the Society in 1866. He died on September 21st, 1892, at the age of sixty-five. He studied medicine at St. George's Hospital. He became M.R.C.S.Eng. and L.S.A. in 1855, and M.D.St. Andrews in 1857. He was Surgeon to the London City Mission, and Medical Referee to several Assurance Companies. He was formely Divisional Surgeon to the Metropolitan Police, and Surgeon to the clerks of the Railway Clearing-house. He published "Clinical Remarks on Puerperal Convulsions" in 'The Lancet' for 1861, "Notes on Scriveners' Palsy" in 'The Medical Times and Gazette' for 1867, and "Rupture of the Bladder and Enteritis" in 'The British Medical Journal' for 1868.

George Lowe.

George Lowe died on October 30th, 1892, at the age of seventy-nine. He studied medicine in Dublin, St. Bartholomew's Hospital, and Paris. He became M.R.C.S.Eng. and L.S.A. in 1837, and F.R.C.S.Eng. in 1863.

He practised his profession for nearly fifty-five years in Burton-on-Trent, having commenced in 1837, and having continued to visit his patients until shortly before his death. He early acquired a large practice. His ability and skill were widely recognised, and he was frequently called in consultation by other medical practitioners. He had a strong taste for surgery, and he had a considerable reputation as an operating surgeon. He was for many years Surgeon to the Burton Infirmary, and when he retired was appointed Consulting Surgeon to it. He was a man of untiring energy and love of work. He was a Justice of the Peace for the Borough of Burton.

He was an enthusiastic supporter of Friendly Societies, and especially of the Manchester Unity, in one of the Lodges of which he held for a time a high and responsible position. He took a warm interest in local public work, and he was for some years Chairman of the Highways and Sewers Committee of the Old Town Commissioners.

He was a staunch churchman. He was also a keen politician, and often took the chair at local meetings of the Conservative party.

He published in the 'Medical Gazette' for 1850 a contribution entitled "Fungus Cerebri;" in the 'Medical Times and Gazette' for 1862 a "Case of Quadruple External Aneurism;" in the 'St. Bartholomew's Hospital Reports' vol. v, 1869, "Two cases of Complete Dislocation of the Knee forwards, with Rupture of the Popliteal Vessels, requiring Amputation;" and in vol. xxvii, 1891, a paper on "Surgical Cases of Interest," numbering thirteen in all.

He joined the Society in 1862. He was our Honorary Local Secretary at Burton-on-Trent. He was a Member of the Council in 1887–9. In 1870 he communicated to the Society an interesting "Case of Hæmorrhage from Retained Placenta after Abortion, terminating fatally;" and in 1887 a "Case of Atresia of the Uterine Cervical Canal, Distension of the Uterus, Escape of the Menstrual Fluid between the Walls of the Vagina."

I am informed that it has been decided to show, by the erection of a public memorial of him, the great respect and esteem in which he was held.

James Hadaway.

James Hadaway died on December 6th, 1892, at the age of seventy-three. He became a Fellow of the Society in 1867. He studied medicine at the Middlesex Hospital. He became M.R.C.S.Eng. and L.S.A. in 1853, and L.R.C.P Edin. in 1860. For many years he practised his profession in Welbeck Street, London, but a few years

ago he gave up practice, and retired to Garlinge, near Margate. He was the author of three contributions to 'The Lancet'—"Case of Recovery from Asphyxia by the Marshall Hall method," 1857; "Two Cases of Encephalous Monsters," 1862; and "Smallpox in Pregnant Women," 1871.

Dr. James Hobson Aveling.

James Hobson Aveling was born at Whittlesea, in Cambridgeshire, on January 25th, 1828, and he died in London on December 12th, 1892, at the age of sixty-four. His death was ascribed to an attack of typhoid fever of ten days' duration. He was the youngest of the three sons of Mr. Thomas Aveling, who possessed a considerable amount of landed property in Cambridgeshire, and who died when his son James was only four years old. Three of Dr. Aveling's ancestors had been High Sheriff of the county, and are commemorated by monuments in Whittlesea Church. His mother, whose maiden name was Hobson, married as her second husband the Rev. John D'Urban, Incumbent of the church of Hoo, near Rochester. Her son James was then six years old. He studied medicine in Aberdeen, where he obtained the medal in anatomy in 1848. He became M.R.C.S.Eng. in 1851, M.B.Aberd. in 1856, and M.D.Aberd. in 1857.

In 1853 he married Miss Bryce, daughter of the Rev. James Bryce, of Aberdeen. She survives him. He had no children.

In 1852 he commenced practice in Ecclesfield, about five miles from Sheffield, and in 1856 he established himself in Sheffield itself. From the first he devoted himself specially to gynæcology, and he was soon appointed Lecturer on Midwifery and Diseases of Women and Children in the Sheffield School of Medicine. He was so strongly impressed with the insufficiency of the provision made for the treatment of diseases of women that he immediately busied himself in a scheme for the establish-

ment of a special hospital. He was unsuccessful for a time, but in 1864, aided by the late Mr. Thomas Jessop, the late Dr. Jackson, and Mr. Keeling, he had the satisfaction of seeing a hospital for women, with twelve beds, opened in a house altered for the purpose in Figtree Lane. In 1878 the hospital was transferred to new quarters provided by Mr. Jessop. It now contains forty-five beds, and is called the Jessop Hospital for Women.

Dr. Aveling joined the Literary and Philosophical Society of Sheffield, and he was elected President of the Society for the year 1865.

In 1868 he left Sheffield on account of his wife's health, and settled in Rochester, where his eldest brother Thomas, the engineer who invented the steam road-roller, resided. An unsuccessful attempt to retain him in Sheffield was made by his numerous friends and patients there. On his leaving he was entertained at a complimentary dinner presided over by the Mayor, and was presented with a valuable watch as a token of personal regard.

In March, 1871, when his wife had recovered her health, he quitted Rochester and removed to London, settling in Upper Wimpole Street, where he remained until his death. He at once made up his mind to found a new special hospital in London, and with the co-operation of Dr. Thomas Chambers he immediately took steps to effect that object. The result was the Chelsea Hospital for Women, which was opened with eight beds in the end of 1871. The hospital, which is now a flourishing institution with sixty beds, and palatially housed in the Fulham Road, with Dr. Robert Barnes and, until his death, Dr. Aveling as Consulting Physicians, Sir T. Spencer Wells and Mr. Jonathan Hutchinson as Consulting Surgeons, and a staff of eleven acting medical officers, took its rise in a small rented house in the King's Road, Chelsea. Considering how the new hospital has prospered, it may be worth mentioning as an illustration of Dr. Aveling's sagacity and foresight that when he settled in London he came to me and said that he knew it was essential for him to obtain a hospital

appointment in London, and that as he would not at his age accept a junior appointment and could not obtain a senior one, he had resolved to found a new hospital for women, and had selected Chelsea as the most promising district. He resigned his appointment as Physician in 1886, and was appointed Consulting Physician.

His talent for starting new schemes took other directions also. Thus he originated 'The Obstetrical Journal of Great Britain and Ireland,' and he edited it from its first appearance in April, 1873, to March, 1876. He wrote many articles in it himself, and published some of them separately afterwards.

Moreover, he took a prominent part in founding the British Gynæcological Society in 1884, and he was a Vice-President of that Society in its first year.

He took a deep interest in the education of midwives, and by his writings and influence did much to promote the movement in favour of the proposed legal registration of them. He did more, I think, than anyone else to set the question fully and fairly before the profession, and to meet the arguments urged against legal registration. In the 'British Gynæcological Journal' for 1890 there is reported an able statement by him on the Midwives Registration Bill. His mastery of the subject was also well shown in his remarks in moving, at the Annual Meeting of this Society in February, 1891, a resolution "That the Fellows approve the policy pursued by this Society for the last twenty years relating to midwives." In a letter published in 'The British Medical Journal' on November 19th, 1892, he again deals with the subject.

He was selected by the Obstetrical Society as one of the Examiners on the first Board for the Examination of Midwives. At the first examination, which was held in April, 1872, no more than four candidates presented themselves. At the examination which was held last month there were eighty-five.

He was one of the Original Fellows of this Society. He was a Member of Council in 1865–6, 1872, and 1884. He

was an Honorary Secretary in 1873, Honorary Librarian in 1874–6, a Vice-President in 1877—8, a Member of the Board for the Examination of Midwives in 1872 and in 1875–7, and Chairman of the Board in 1878–82.

He contributed to the Society a number of papers, of which the following is a list, with the year :—"Historical Notes on Displacement of the Unimpregnated Uterus as a Cause of Displacement of the Gravid Organ," 1861 ; "On Vaginal Lithotomy," 1863 ; "On Immediate Transfusion," 1864 ; "A Case of Ovariotomy in which the Pedicle was tied and returned, and the Ligature removed in Forty-eight Hours," 1865 ; "On the Relative Value of the Various Substances which have been used in Dilating the Neck of the Womb, with a Plan for Deodorising Sponge Tents," 1867 ; "Case of Rupture of the Uterus occurring during Labour," 1868 ; "A New Principle of Treatment in Prolapsus and Procidentia Uteri," 1869 ; "On Post-mortem Parturition, with References to Forty-four Cases," 1872 ; and "The Curves of the Midwifery Forceps, their Origin and Uses," 1878.

He possessed great mechanical ingenuity, and he turned it to account in the invention of gynæcological and obstetrical instruments. The following is a list of those which he exhibited at our Society :—The Polyptrite, 1862 ; A New Hysterotome, 1865 ; A Pair of Midwifery Forceps with the Handles curved backwards, 1868 ; the Gynæcometer, 1871 ; Apparatus for Immediate Transfusion, 1872 ; A Loop Saw, 1873 ; A Rectal Protruder, 1876 ; A Curved Needle for Vesico-vaginal Fistula, 1877 ; A Repositor for Inversion of the Uterus, 1878 ; and a Regulator for Paquelin's Cautery, 1878.

He was likewise the author of the following monographs :—"English Midwives, their History and Prospects," 1872 ; "On Nidation in the Human Female," 1874 ; "Memorials of Harvey, including a Letter and Autographs in Facsimile," 1875 ; "The Influence of Posture on Women in Gynecic and Obstetric Practice," 1878 ; "The Chamberlens and the Midwifery Forceps : Memorials

of the Family and an Essay on the Invention of the Instrument," 1882; and a post-graduate lecture "On Inversion of the Uterus, with Eleven Cases successfully treated by the Sigmoid Repositor," 1886.

He found time for intellectual occupation beyond the sphere of his own profession. He published in 1870 'The History of Roche Abbey,' a beautiful folio volume of 200 pages, with 15 plates. He was elected a Fellow of the Society of Antiquaries in 1877. In 1886 he published 'Fables,' a volume of 184 pages containing a series of 37 quaint fables or allegories.

At the time of his death he was an Honorary Member of the Obstetrical Society of Dublin, a Corresponding Fellow of the Edinburgh Obstetrical Society, a Corresponding Member of the Gynæcological Society of Boston, Consulting Physician to the Chelsea Hospital for Women, and Consulting Obstetric Physician to the St. Marylebone Dispensary.

On December 15th, 1892, by his own wish often expressed, his body was cremated at Woking. As he expressed it, he "wished to do the living no harm after his death, as he had tried to do no one harm during his life."

In 1892 the Society lost by death two of its short list of thirteen Honorary Fellows—Professor Credé, of Leipzig, and Dr. Alexander Keiller, of Edinburgh.

Professor Carl Siegmund Franz Credé.

Carl Siegmund Franz Credé was born in Berlin on December 23rd, 1819. He died from carcinoma of the prostate at Leipzig on March 14th, 1892, at the age of seventy-two. His father, who came of a French emigrant family which had settled in Hesse, was a high official in the Ministry of Public Worship and Public Instruction in Berlin.

Credé began his medical studies in Berlin in 1838, and he took his medical degree there in 1842. He passed six months of his curriculum at Heidelberg, where he made

the acquaintance of Naegele. His Inaugural Dissertation was entitled "De Omphaloproptosi."

In 1843 he became Assistant in the Obstetric Clinic in Berlin, under the direction of Professor D. W. H. Busch, and he held the appointment until 1848. In 1850 he became a Privat-Docent of Midwifery in Berlin. In 1852 he was appointed Director of the Berlin School for Midwives and of the Lying-in Department of the Charité Hospital. At his instigation a gynæcological clinic was established, and it was put under his charge.

In 1856 he was called to Leipzig to succeed Jörg as Professor of Midwifery. He also conducted the Klinik and Poliklinik which Professor Germann had established under Professor Jörg. Soon after he went to Leipzig he founded an Obstetrical Society in conjunction with Ploss and others.

In 1875 he was invited to succeed Eduard Martin in Berlin, but he declined on account of his age, then fifty-six years.

In 1887 failing health led to his resignation of his appointments.

In 1875, on his refusal of the call to Berlin, the Saxon Government conferred on him the Cross of Commander of the Order of Merit, 2nd Class.

In 1847 he married Fräulein Caecilie von Cebrow, and was permitted by Busch to reside outside the Lying-in Institution. He is survived by her and by three sons and five daughters.

He was renowned as a teacher, and beloved by his pupils, and he trained several of the most celebrated obstetricians of our time, including Ahlfeld, Fehling, Leopold, and Sänger. As a teacher he devoted himself chiefly to obstetrics, but as time went on he also paid much attention to the teaching of gynæcology. In the middle period of his professional life he undertook the major gynæcological operations, and he was noted for his dexterity as an operator.

In 1853 he joined with Busch, von Ritgen, and von

Siebold in founding and editing the 'Monatsschrift für Geburtskunde und Frauenkrankheiten.' When that periodical was discontinued at the end of 1869, he founded the 'Archiv für Gynaekologie,' and he continued to be one of the editors of it until his last illness. In August, 1881, when Spiegelberg died, Credé became sole editor, and he remained so for three years. He rendered signal service to obstetrics and gynæcology in founding and conducting those two periodicals. As Leopold says, he was a born editor. The following list of his writings is cut from a memorial address by his son-in-law Professor Leopold, published in the 'Archiv für Gynaekologie,' Band xlii, 1892, p. 211.

De omphaloproptosi. Inaugural-Dissertation. (1841.)

1. Klinische Vorträge über Geburtshülfe. I. Abtheilung. Berlin. (1853.)
2. Fall von Strangulation des Fötus durch achtfache Umschlingung um den Hals bei secundär syphilitischer Mutter. Monatsschrift für Geburtskunde, Bd. i. (1853.)
3. Klinische Vorträge über Geburtskunde. II Abtheilung. Berlin. (1854.)
4. Die preussischen Hebammen und ihre Stellung zum Staate und zur Geburtshülfe. Berlin. (1855.)
5. Bericht über die Vorgänge in der Gebärabtheilung der Charité zu Berlin während der vier Winterhalbjahre von 1852 bis 1856. Berlin. (1856.)
6. Zwei Fälle von künstlicher Frühgeburt nach den Cohen'schen Methode. Monatsschrift für Geburtshülfe, Bd. vii. (1856.)
7. Fall von blutiger Erweiterung des Muttermundes während der Geburt. Ebendas., Bd. vii. (1856.)
8. Einige Mittheilungen über Hæmatocele retrouterina. Ebendas., Bd. ix. (1857.)
9. Drei Fälle von künstlicher Frühgeburt nach der Cohen'schen Methode. Ebendas., Bd. xi. (1858.)
10. Vorfall des mit Fruchtwasser gefüllten Amnion. Ebendas., Bd. xiii. (1859.)
11. Ueber narbenähnliche Streifen in der Haut des Bauches, der Brüste und der Oberschenkel bei Schwangeren und Entbundenen. Ebendas., Bd. xiv. (1859.)
12. Bericht über die Vorgänge in der Königl. Sächsischen Entbindungsschule zu Leipzig seit ihrer Gründung am 5 Februar, 1810, bis zum 30 September, 1859. Ebendas., Bd. xv. (1860.)
13. Ueber die zweckmässigste Methode der Entfernung der Nachgeburt. Ebendas., Bd. xvii. (1861.)
14. Observationes nonnullæ de foetus situ inter graviditatem. Progr. ad memor. Bosii. Lips. (1862.

15. Observationes de foetus situ inter graviditatem series ii. Progr. ad memor. Bosii. Lips. (1864.)
16. Fall von Acardiacus. Monatsschrift für Geburtshülfe, Bd. xxxiii. (1869.)
17. Eine Missbildung durch amniotische Fäden und Bänder. Ebendas., Bd. xxxiii. (1869.)
18. Beiträge zur Bestimmung der normalen Lage der gesunden Gebärmutter. Dieses Archiv, Bd. i. (1870.)
19. Kurze Mittheilung über Anwendung der Salicylsäure. Ebendas., Bd. v. (1873.)
20. Lehrbuch der Hebammenkunst in Verbindung mit Winckel. Leipzig. 1 Aufl. (1875.)
21. Die Verhütung der Augenentzündung der Neugeborenen. Dieses Archiv, Bd. xvii. (1881.)
22. Ueber die zweckmässigste Methode der Entfernung der Nachgeburt. Ebendas., Bd. xvii. (1881.)
23. Die Verhütung der Augenentzündung der Neugeborenen. Ebendas., Bd. xviii. (1881.)
24. Lehrbuch der Hebammenkunst in Verbindung mit Winckel. Leipzig. 3 Aufl. (1882.)
25. Zur Verhütung der Augenentzündung der Neugeborenen. Dieses Archiv, Bd. xxi. (1883.)
26. Die Behandlung des Nabels der Neugeborenen (Credé und Weber). Ebend., Bd. xxiii. (1884.)
27. Die Verhütung der Augenentzündung der Neugeborenen. Berlin. Hirschwald. (1884.)
28. Abwehr gegen Ahlfeld, "Berichte und Arbeiten aus der geburtshülflich-gynäkologischen Klinik zu Giessen 1881–82." Dieses Archiv, Bd. xxiii. (1884.)
29. Ueber Erwärmungsgeräthe für frühgeborene und schwächliche kleine Kinder. Ebendas., Bd. xxiv. (1884.)
30. Ueber die Zweckmässigkeit der einseitigen seitlichen Incision beim Dammschutzverfahren (Credé und Colpe). Ebendas., Bd. xxiv. (1884.)
31. Ueber eine zweckmässige Binde für Frauen während der Menstruation und zur Stütze bei Scheiden- und Gebärmuttervorfällen. Ebendas., Bd. xxiv. (1884.)
32. Einige erläuternde Bemerkungen zu dem Berichte über: "80 Fälle von Kraniotomie aus der geburtshülflichen Klinik und Poliklinik in Halle a. S. von Dr. W. Thorn." Ebendas., Bd. xxiv. (1884.)
33. Einfache und leicht aseptisch zu erhaltende Stechbecken für Darmausleerungen und Abflussbecken für Ausspülungen. Ebendas., Bd. xxv. (1885.)
34. Die Anwendung der Zange bei nachfolgendem Kopfe. Ebendas. xxv. (1885.)
35. Lehrbuch der Hebammenkunst (in Verbindung mit Leopold). Leipzig. 4 Aufl. (1886.)
36. Gesunde und kranke Wöchnerinnen. Leipzig. (1886.)

37. Zwei weitere Fälle von Kaiserschnitt (Nr. 5 u. 6) nach Sänger's Methode. Dieses Archiv, Bd. xxviii. (1886.)
38. Fall von Kaiserschnitt (Nr. 7) nach Sänger's Methode. Ebendas., Bd. xxx. (1887.)
39. Weitere Erfahrungen über gesunde und kranke Wöchnerinnen. Ebendas., Bd. xxx. (1887.)
40. Die Behandlung der Nachgeburt bei regelmässigen Geburten. Ebendas., Bd. xxxii. (1888.)
41. Lehrbuch der Hebammenkunst (in Verbindung mit Leopold.) Leipzig. 5 Aufl. (1892.)
42. Die geburtshülfliche Untersuchung (in Verbindung mit Leopold). Leipzig. Hirzel. (1892.)

His 'Klinische Vorträge über Geburtshülfe' or Clinical Lectures on Midwifery is the only large work which he wrote, and it was never re-issued after its completion in 1854. It contains the substance of his obstetric teaching.

A much smaller work, his 'Gesunde und kranke Wöchnerinnen,' published in 1886, gives the results of his life-long experience. Among various interesting sections of it may be specially mentioned those on febrile excitement resulting from mental disturbance, digestive disturbance, retention of milk, &c., and the chapter on the prophylaxis of septicæmia.

Credé's name will remain imperishably associated with two subjects, both of surpassing importance: the management of the third stage of labour, and the prevention of ophthalmia neonatorum and blindness.

It was in the first part of his 'Klinische Vorträge,' published in 1853, that he first promulgated his method of extruding the secundines. At pp. 599—601 he says that the simplest and most natural means of expediting the expulsion of the placenta is the excitement and the strengthening of the uterine contractions. In innumerable cases he had thus succeeded, without a single failure, in causing the expulsion of the placenta in from a quarter of an hour to half an hour after the birth of the child. He gently rubbed the fundus and body of the uterus through the abdominal wall, and he gradually increased the friction until he induced a strong contraction. When the contraction was at its height he grasped the uterus with

his whole hand, so that the fundus lay in the palm, and the body was surrounded by the thumb and the four fingers. He thus, with gentle pressure, expelled the placenta, which he always felt slip out of the uterus from under his fingers. Generally the placenta was extruded entirely from the passages, and, at the least, it came into the lower part of the vagina. At this period he still recommended that when the placenta lay in the vagina it should be extracted by pulling at the funis.

At the Conference of the Gynæcological Section of the Association of German Naturalists and Physicians in Königsberg on September 17th, 1860, as reported in the 'Monatsschrift für Geburtskunde und Frauenkrankheiten' for that year (Band xvi, p. 337), Credé described his method, which he said he had practised and taught for several years, as the method to be adopted in natural labours.

In the 'Monatsschrift' for 1861 (Band xvii, p. 274) he published an article, chiefly historical, "Ueber die zweckmässigste Methode der Entfernung der Nachgeburt." In that article he said that he now taught and practised his own method only.

In an article under the same title in the 'Archiv für Gynaekologie' for 1881, Band xvii, p. 260, he states that his method had been misunderstood by many, and that he expressed the placenta, not only from the uterus, but also from the vagina. Sometimes this was done at the acme of the first or of the second uterine contraction after the birth of the fœtus, but generally at the acme of the third contraction.

He latterly modified his procedure somewhat, and in the 'Lehrbuch der Geburtshülfe für Hebammen,' 5th edition, 1892, p. 104, issued in conjunction with Leopold, it is recommended that the midwife should wait thirty minutes if there is no hæmorrhage, and then express the placenta. This is to be done by grasping the fundus uteri with the hand, the thumb being placed in front of the uterus and the four fingers behind it.

In the year 1878 I had the advantage of attending

Credé's clinic for a short time, and of seeing his practice and its results.

In order to form an estimate of the services of Credé it is necessary to take into account what had been previously done in the same direction. I must apologise to you for yielding to the temptation to speak first of the various phases through which the management of the third stage of labour passed before friction and pressure were practised.

The earliest method of dealing with the third stage of labour was probably that still followed in Old Calabar, as described in a paper which I heard read in the Edinburgh Obstetrical Society by the late Dr. Archibald Hewan in June, 1864. The paper was published in the 'Edinburgh Medical Journal' for September, 1864. The child is allowed to lie, with the funis uncut, between the thighs of the mother until the placenta comes away, however long that may be.

The inconveniences of such a practice were probably felt before long. At any rate, energetic measures betimes took the place of the previous inactivity.

In his 1255th Aphorism Hippocrates recommends the use of a sternutatory and stopping the nostrils and the mouth, in order to effect the expulsion of the secundines (τὰ ὕστερα). In the spurious Hippocratic Treatise 'Περὶ Ἐπικυήσιος' ('On Superfœtation') it is recommended that when the secundines (τὸ χόριον) do not readily follow the extraction of the fœtus, the patient should be placed as if at stool, and that gradually increasing traction should be made on the funis by the weight of the child laid on a cushion of newly-carded wool, or on two leathern bottles (ἀσκία) connected together and filled with water, with the wool cushion for the fœtus resting above them. Each bag or bottle was to be pierced with a style, so that the water might gradually escape.

Celsus ('De Arte Medicâ Libri Octo,' Liber Quintus, Caput xxv, 13) recommends a draught of water, to which sal ammoniac or Dittany of Crete has been added, for the purpose of expelling a dead fœtus or the secundines.

Again, he recommends (Liber Septimus, Caput xxix, near the end of the chapter) that when a dead fœtus has been extracted the physician should gently pull on the funis with his left hand, and that, guided by the funis, he should pass his right hand up to the secundines, which he should seize and bring away, along with any clots which might be present.

In his translation of Paulus Ægineta for the Sydenham Society (vol. ii, p. 393) the late Dr. Francis Adams says that Philumenus, Aëtius, Moschion, Avicenna, Albucasis, and Haly Abbas removed the placenta by introducing the hand into the uterus. Paulus Ægineta did the same, merely following Philumenus and Aëtius. Rhases recommended that when the secundines did not come away the patient should be made to sneeze, and that if they were still retained, the hand with the nails pared should be introduced into the uterus, and cautious traction made on the secundines. When they could not be removed in this way he advised that injections should be thrown into the womb, so as to promote their putrefaction. Soranus disapproved of all violent attempts at extraction, but advised the gentle introduction of the hand when all other means failed.

In early times it was generally thought that unless the secundines were immediately removed the os uteri would close, or that dangerous hæmorrhage would supervene.

Thus Ambrose Paré ('Les Oeuvres d'Ambroise Paré,' 5th edition, 1598, livre xxiv, chap. xvii, p. 936) says that immediately after the child is born the midwife is to pull out the placenta, and, if necessary, pass her hand into the uterus for the purpose. Otherwise the uterus and all the other parts would close directly. Sternutatories, fomentations, injections, and many other aids are recommended. It is only when the placenta has been extracted that the cord is to be tied and cut.

Mauriceau taught ('Traité des Maladies des Femmes grosses et de celles qui sont nouvellement accouchées,' 1683, p. 212) that directly the fœtus was born, and before the funis was tied or cut, the placenta was to be pulled

out by tractions on the funis, the patient being made to assist by blowing strongly into one of her hands, closed, as if she were blowing into the mouth of a bottle; by putting one of her fingers into her throat as if to excite vomiting; or by straining as if at stool, or as if trying to expel another fœtus. In this he was merely following the example of numerous primitive tribes, who use the same and similar expedients to the present day. If there was great difficulty Mauriceau advised that gentle pressure and friction should be made on the abdomen with the left hand. If this failed the hand was to be introduced into the uterus, and the placenta was to be separated and removed.

The immediate extraction of the placenta by the introduction of the hand was recommended by Portal ('La Pratique des Accouchemens,' 1685, p. 10); Dr. John Maubray ('The Female Physician,' 1724, p. 220); Deventer ('Ars Obstetricandi,' 1725, p. 216); Edmund Chapman ('An Essay on the Improvement of Midwifery,' 1733, p. 42); Sir Richard Manningham ('Artis Obstetricariæ Compendium,' 1739, p. 12); Heister ('Institutiones Chirurgicæ,' 1739, Pars Secunda, p. 1074); Dr. John Burton ('An Essay towards a Complete New System of Midwifery,' 1751, p. 126); Dr. Brudenell Exton ('A New and General System of Midwifery,' 2nd edition, 1752, p. 130); Dr. Thomas Cooper ('A Compendium of Midwifery,' 1766, p. 91), and by others. Some of the foregoing writers were specially urgent in their haste, as Maubray, who advised that with all imaginable speed the hand should be introduced and the placenta extracted; Chapman, who slipped his hand into the uterus the moment the child was born; and Exton, who introduced his hand into the uterus as soon as he possibly could. In fact, the immediate extraction of the secundines was the common practice until the middle of the eighteenth century.

The late Dr. Aveling discovered an indication of early English practice in a work of the fifteenth century, existing in manuscript among the Sloan MSS. in the British Museum. He published some notes of it in 'The Obstet-

rical Journal of Great Britain and Ireland' for May 1874, under the title "An Account of the Earliest English Work on Midwifery and the Diseases of Women." It is stated that in cases of retained placenta "the mydwif shuld anoynt her hondes and with hir nayles pullen owte the secundine if she mowe" (p. 83). The author seems to have been somewhat less rash than many later writers were.

One of the earliest to recommend a little patience was Jacques Guillemeau, the greatest of Paré's pupils and the translator of his works into Latin. In his treatise 'De l'Heureux Accouchement des Femmes,' 1609, p. 315, Guillemeau advises that the patient should be made to cough, blow and sneeze, and that if the placenta refused to come, the hand should be introduced into the uterus for its removal. He gives a caution against precipitancy, and he recommends patience for a little before proceeding to extraction.

Many years later Peu ('La Pratique des Acouchemens,' 1694, p. 192), discountenances precipitancy, violence, and unnecessary interference. "Festina lente" is the advice which he gives.

Vitus Riedlinus ('Lineæ Medicæ' Anni 1695, Mensis Aprilis, Dies xix and xx) shrewdly remarks that the expulsion of the placenta is often ascribed to drugs when it is the work of nature, and he says that there should be no haste in extracting it by the introduction of the hand.

The reaction against meddlesome interference in the third stage was encouraged by the writings of Ruysch who, in his 'Adversariorum Anatomico-Chirurgicorum Decas Secunda,' 1720, Caput x, argues that the placenta should be left until nature expels it, or at all events until it is detached and can be pulled out. It is in this Decas that Ruysch describes the supposed orbicular muscle of the fundus uteri, and bursts into the enthusiastic exclamation over the unique structure—"O admirabilem fabricam quâ instruxit hanc unam uteri partem Sapientissimus Creator."

De la Motte ('Traité Complet des Accouchemens,' 1721, p, 160) advised that the cord should be pulled and shaken

from side to side, and that if this did not succeed the patient should blow into her hand, strain as if at stool, and put her finger into her mouth as if she wished to make herself vomit. If the cord broke or the placenta still resisted he then introduced his hand into the uterus (pp. 727, 738).

Smellie ('A Treatise on the Theory and Practice of Midwifery,' 1752, p. 252, *et seq.*) also advocated patience in the management of the third stage. He recommended that the funis should be seized by the left hand and gently pulled from side to side, while the patient was desired to strain as if she were at stool, to blow forcibly into her hand, or to thrust her finger into her throat. If the placenta could not be brought away by these means, the hand was to be introduced into the vagina, or, if necessary, into the uterus. In the latter case pressure was to be exerted on the abdomen to keep down the uterus.

Benjamin Pugh should, perhaps, be included in the same category, as he tried tractions on the funis first, and, if they failed, introduced his hand into the uterus in ten minutes ('A Treatise of Midwifery,' 1754, p. 26).

Puzos ('Traité des Accouchemens,' 1759, pp. 141—154) gives a good account of the physiology of the third stage of labour. In the management of it he says he always prefers patience to precipitancy.

Levret ('Essai sur l'Abus des Regles Générales . . des Accouchemens,' 1766, pp. 168—189) and Denman ('An Introduction to the Practice of Midwifery,' 1794, vol. i, p. 409) followed nearly the same practice as Smellie. Denman would allow the placenta to remain for an hour in the vagina before he pulled it out.

Some writers were so much struck with the difficulty or the imagined impossibility of manual extraction that they advised leaving the secundines in the uterus if they failed to come away spontaneously. Thus Eucharius Rhodion or Roesslin ('De Partu Hominis et quæ circa ipsum accidunt,' 1532, Caput vi), recommends various measures for the expulsion of a retained placenta, and if they fail, advises

that the placenta be left to come away of its own accord.

In the 'Byrth of mankynd, otherwise named the Woman's Boke,' by Thomas Raynald, Phisition, 1552, ff. lxxx to lxxxiii, the same advice is given. 'The Boke' is in fact a translation of Rhodion.

R. Rawlins, Surgeon, Oxford ('A Dissertation on the Structure of the Obstetric Forceps . . . . together with Cautions, Remarks and Reflections on the Conduct and Management of Labors in general' 1793, p. 77), maintains that if no pains recur after the child is born, and the placenta cannot be touched with the finger, it must be left to nature.

Although but few obstetric writers recommend that the expulsion of the secundines should be left entirely to nature, it is clear from the numerous references to the practice that it must have been widely adopted at one time.

Many practitioners, without going so far as this, were content to wait four or six hours or longer before they proceeded to manual extraction. Mrs. Elizabeth Nihell, Professed Midwife ('A Treatise on the Art of Midwifery,' 1760, p. 305), speaks of a gentleman midwife leaving a patient after the birth of the fœtus, intending to return next day to deliver her of the after-birth; and of ladies who commended the patience of certain gentlemen midwives who waited five, six, and seven hours by the clock before delivering the after-birth.

The practice of leaving the secundines in the uterus did not prove so dangerous as we might perhaps have expected, but it sometimes led to fatal results. William Perfect, Surgeon, of West Malling in Kent ('Cases in Midwifery,' vol. ii, 1783, p. 371, *et seq.*), Charles White, of Manchester ('A Treatise on the Management of Pregnant and Lying-in Women' 3rd edition, 1785, pp. 05, 307–10), and other writers report fatal cases.

White himself (p. 106) and many others after him laid great stress on leaving the expulsion of the fœtus

entirely to nature, instead of extracting the body as soon as the head was born, as was commonly done.

Some even advised that, with the object of furthering the natural expulsion of the placenta, the birth of the fœtus should be retarded mechanically. Dr. William Osborn ('Essays on the Practice of Midwifery in Natural and Difficult Labours,' 1792, p. 44), says that retention of the placenta may invariably be prevented by retarding or impeding the expulsion of the body after the birth of the head. Dr. John Clarke, of London ('Practical Essays on the Management of Pregnancy and Labour,' 1793, p. 23), Dr. John Power ('A Treatise on Midwifery,' 2nd edition, 1823, pp. 35 and 182), and others followed Osborn's practice, and spoke in similar terms of the advantages of it.

It is quite unknown at what epoch friction and external pressure were first used in the third stage of labour, but external pressure has no doubt been employed from a remote antiquity. It is in common use at the present day, often violent and ill directed, among many primitive tribes, as is amply shown in the following monographs:—"The Third Stage of Labour: An Ethnological Study," by Dr. George J. Engelmann ('The American Journal of Obstetrics,' April, 1881, p. 303); "Historisch-ethnographische Notizen zur Behandlung der Nachgeburtsperiode," by Dr. H. Ploss ('Beiträge zur Geburtshülfe, Gynäkologie und Pädiatrik' Leipzig, 1881, pp. 12—31); "Labor among Primitive Peoples," by Dr. George J. Engelmann (St. Louis, 1st edition, 1882, 3rd edition, 1884); "Notes on Labour in Central Africa," by Dr. Robert W. Felkin ('The Transactions of the Edinburgh Obstetrical Society' for 1883–84 pp. 28—36); "Midwifery among the Burmese," by Dr. T. F. Pedley ('Transactions of the Obstetrical Society of London' for 1887, p. 5).

In 'The Compleat Midwifes Practice Enlarged . . . . a Work so plain that the weakest capacity may easily attain the knowledge of the whole Art' (2nd edition, 1659, p. 118), it is stated that if the patient is troubled with the "wind cholicks," "the Midwife ought to chafe the

woman's belly with her hand, which does not only break the wind, but causes the Secondine to come down." Although the work is in an English garb, the inspiration of it is French.

We have already seen that Mauriceau, in 1683, recommended slight pressure upon the abdomen and gentle friction, if bearing-down, sneezing, and such like aids failed.

Dionis ('Traité General des Accouchemens,' 1718, p.221), advises that while traction is being exerted on the cord light pressure should be made over the region of the uterus.

Heister ('Institutiones Chirurgicæ,' 1739, Pars Secunda, p. 1077), advised that when the funis was ruptured inside the passages, and the surgeon had introduced one hand into the uterus for the purpose of extracting the placenta, he should place his other hand on the abdomen, and gently compress the uterus with it.

Dr. John Harvie, Teacher of Midwifery in London ('Practical Directions shewing a Method of preserving the Perinæum in Birth, and delivering the Placenta without Violence,' 1767, p. 45) recommends the application of the hand to the patient's abdomen so as to feel the uterus, which is to be lightly pressed downwards or towards the pubes with the flat of the hand. The uterus, he says, will be felt to contract, and the placenta will be expelled from the passages, or at all events will be forced down into the lower part of the vagina. The hand is to be subsequently placed upon the abdomen, and any coagula present in the uterus expelled.

Dr. Robert Wallace Johnson ('A New System of Midwifery,' 1876, p. 200) directs that as soon as the child is born and the funis tied and divided, the patient should compress her abdomen with both her hands, pressing first on the epigastric, then on the umbilical, and finally on the hypogastric region. The doctor is to pull on the funis while the patient makes pressure upon the hypogastrium.

Charles White ('A Treatise on the Management of Pregnant and Lying-in Women,' 1773, p. 110), recommends traction on the funis in the third stage of labour, and adds

that "an easy pressure upon the abdomen by assisting the uterus to contract will be of service."

Baudelocque ('L'Art des Accouchemens,' 1871, p. 313) recommends friction on the hypogastric region in the third stage.

William Dease, Surgeon, of Dublin ('Observations in Midwifery,' 1783, p. 33) says, "Should the detachment of the placenta not be effected in the usual time, it will be much facilitated by the operator's judiciously applying his hand to the region of the uterus, which he may excite to the necessary contraction by gentle friction, and by introducing one or two fingers between the os uteri and the placenta, at the same time gently drawing and inclining the umbilical chord towards the sacrum."

Dr. David Spence ('A System of Midwifery,' 1784, p. 165) recommends that the belly be gently rubbed downwards, particularly where the uterus and the placenta are found, and that the woman be desired to press down easily, or to make attempts to sneeze or to slightly irritate the fauces.

Dr. Friedrich Benjamin Osiander ('Annalen der Entbindungs-Lehranstalt auf der Universität zu Göttingen vom Jahre 1800,' Göttingen, 1801, Band i. Introduction, p. 18) says that in the Göttingen Institution the afterbirth was never removed by the introduction of the hand, but always by gentle manipulation of the uterus, and gentle traction on the navel-string made at the right time, that is when the placenta was felt by external examination to be detached. The placenta was generally expressed within a quarter of an hour after the birth of the child, and it seldom remained over half an hour. A year later, Osiander ('Grundriss der Entbindungskunst,' erster Theil, 1802, p. 301), after describing the extraction of the placenta by pulling on the funis in the direction of the axis of the pelvis says, "Often also, for the expulsion of the afterbirth, there is nothing further necessary than compression of the fundus uteri, whereby the placenta comes out, and can be grasped with the hands held in front."

Dr. John Burns ('Practical Observations on the Uterine Hemorrhage, with Remarks on the Management of the Placenta,' 1807, p. 144) recommended the excitation of uterine action by making gentle pressure on the abdomen immediately after the birth of the fœtus. When there was hæmorrhage he introduced his hand into the uterus to excite contraction, but he left the expulsion of the secundines to nature (pp. 145—146).

Capuron ('Cours Theorique et Pratique d'Accouchemens,' 1811, p. 318) advised that when it was suspected that the placenta was not completely separated, or when the uterus was soft, gentle friction should be made on the hypogastrium with the object of exciting the action of the abdominal muscles and of the uterus.

Dr. Joseph Clarke, who was appointed Master of the Dublin Lying-in Hospital in 1786, says ('Transactions of the Association of Fellows and Licentiates of the King's and Queen's College of Physicians in Ireland,' vol. i, 1817, p. 369), "I have been for some years in the habit, not only of retarding the expulsion of the fœtus in these cases [where the uterus shows a tendency to imperfect action in expelling the fœtus], but, with a hand on the abdomen, of pursuing the fundus uteri in its contractions until the fœtus be entirely expelled, and afterwards of continuing this pressure, to keep it, if possible, in a contracted state. . . . . Labours conducted in this manner will be less liable to be followed by retentions of the placenta, by uterine hæmorrhage, and by after-pains."

After this time pressure and friction came to be commonly employed, as by James Hamilton, of Edinburgh, Collins, of Dublin, Robert Lee, of London, Cazeaux, of Paris, and many others.

In Dr. Alfred H. M'Clintock and Dr. Samuel L. Hardy's 'Practical Observations on Midwifery,' 1848 (p. 221) Credé's method is closely approximated to, as a quotation will show :—"Having placed the hand on the fundus uteri, friction and slight pressure are to be made, and if the amount of contraction thereby induced be not sufficient

to repress the hæmorrhage, it will be necessary to expel the placenta from the cavity of the uterus. In doing this the organ must be grasped firmly, and pressure exerted upon it in the axis of the brim of the pelvis. If the uterus have fallen to the left side, as not uncommonly happens, it must be raised into its natural position before commencing to exert compression upon it. It will also tend much to the success of the manipulation if it be performed during the presence of uterine action. . . . . These measures we have seldom found to fail in getting away the placenta unless it be morbidly adherent—or at least in bringing it to the os uteri within reach of the finger, which is almost the same thing, as its complete removal can then be effected at any moment without delay or difficulty." This method is not recommended by M'Clintock and Hardy in all cases, however, but only in those in which there is hæmorrhage between the birth of the child and the expulsion of the placenta.

A prolonged search would no doubt lead to the discovery of others of the earlier writers recommending external pressure.

Expression was sometimes practised so vigorously, even before Credé's publications, that inversion of the uterus resulted. A case of the kind is recorded in Sinclair and Johnston's 'Practical Midwifery,' 1858, p. 450.

While many medical writers thus recommended friction and pressure in the third stage of labour, and many uncivilised tribes have employed it from time immemorial, I believe that before Credé no one had described a method of expression so precise and effectual as his, or had insisted on the complete extrusion of the secundines from the maternal passages by manual pressure alone.

As soon as Credé's method became widely known, through his address at Königsberg in 1860, and his article in the 'Monatsschrift' in 1861, it was adopted by a great number of obstetricians. Already, however, not a few of those who at one time rigorously followed Credé's recommendations have returned to a more expectant treatment

of the third stage, and in particular have abandoned the practice of extruding the secundines from the vagina by pressure upon the abdomen.

Whether or not Credé's method will ever come to be generally practised in natural labour, it will always be a most valuable addition to our resources in cases of hæmorrhage and in delayed expulsion of the secundines.

The subject of ophthalmia neonatorum early attracted the attention of Credé. In his 'Klinische Vorträge über Geburtshülfe,' erste Abtheilung, 1853, p. 160, he says that acrid discharges in the passages of the mother are the most frequent cause of ophthalmo-blennorrhœa in the new-born child.

In the 'Archiv für Gynaekologie' for 1881 (Band xvii, p. 50), he published an article entitled "Die Verhütung der Augenentzündung der Neugeborenen." A second article followed in the same year (Band xviii, p. 367), and a third in 1883 (Band xxi, p. 179). He enlarged these articles and published them as a pamphlet in 1884, adding to the title the words "the most frequent and most important cause of blindness." He states that he first attempted to prevent ophthalmo-blennorrhœa in the infant, by treating all parturient women suffering from gonorrhœa or from chronic vaginal catarrh with repeated vaginal injections of warm water, or of solutions of carbolic or salicylic acid. Under this treatment ophthalmia became less frequent. In October, 1879, he made his first prophylactic experiments with eye-lotions, using a solution of borax of the strength of one in sixty. In December, 1879, he began the use of nitrate of silver, employing a solution of the strength of one in forty. On June 1st, 1880, he reduced the strength of the solution to one in fifty. The eyes of the children were washed with plain water immediately after their birth. Then the lids were gently separated, and a single drop of the silver solution was inserted between them. A glass rod was now used for the purpose instead of the syringe previously employed. For twenty-four hours the eyes were kept covered with

linen compresses soaked in a 2 per cent. salicylic solution. The vaginal injections were then given up.

The effects of the prophylactic treatment were immediately apparent. From the beginning of 1874 to May 31st, 1880, there had been 2266 children born. Of these 226, or just 10 per cent., were seized with ophthalmo-blennorrhœa. From June 1st, 1880, to December 8th, 1880, there were 200 children born. Of these, one only was seized with eye-inflammation, and in that case the prophylactic instillation had been omitted.

In his second article in the 'Archiv' he stated that he had treated 300 children in a simpler way. As soon as the funis was cut the children were bathed, and their eyes were washed with a clean rag soaked in plain water. Then a drop of the 2 per cent. solution of nitrate of silver was introduced by means of a glass rod between the eyelids slightly opened. The further treatment with compresses was abandoned. Not one of the 300 children so treated suffered from ophthalmia neonatorum.

It is not surprising that results so brilliant, published in the 'Archiv' by an obstetrician of Credé's eminence and known accuracy of observation and of statement, speedily attracted the attention of leading members of the medical profession throughout the world, and led to a trial of his method on a great scale. It is well known that the treatment, wherever it has been practised, has been signally successful. The results during the first few years may be read in a paper on "The Prevention of Ophthalmia Neonatorum and of its Ravages," communicated to this Society in 1885 by Dr. David McKeown, of Manchester. Modifications have been made in the details by other obstetricians, but I believe that no plan has as yet been found so completely successful as Credé's own, although the solution used by him is perhaps unnecessarily strong.

In order to determine the credit due to Credé it is necessary to glance at the work previously done by others. It would be easy to multiply references, but a few will suffice.

Samuel Theodorus Quelmalz ('De Caecitate Infantum Fluoris Albi Materni ejusque virulenti pedissequa disserit,' 1750, p. 7), says that when the mother is suffering from fluor albus the discharge applied to the eyes of her recently born child may cause blindness. He speaks also of the fœtus being affected while still *in utero*.

So far as I can ascertain, the first to give a distinct description of purulent ophthalmia neonatorum was Joseph Warner, F.R.S., Senior Surgeon to Guy's Hospital. In his treatise, 'A Description of the Human Eye and its Adjacent Parts, together with their Principal Diseases and the Methods proposed for relieving them,' 1773 (p. 41), he describes the disease well, and says that he has often been consulted in cases of it, that it appears very alarming, and that if neglected it sometimes results in total blindness. Timely treatment, he says, is generally successful.

Warner was followed by James Ware, F.R.S., who, in his 'Remarks on the Ophthalmy, Psorophthalmy, and Purulent Eye,' 1780, has a chapter "Of the Purulent Eyes of New-born Children." In his 'Remarks on the Purulent Ophthalmy which has lately been Epidemical in this Country,' 1808 (p. 10), Ware notices the fact that "some of the worst cases of this disorder that have occurred in infants have happened in those whose mothers were subject to an acrimonious discharge from the vagina at the time the infants were born."

Johannes Godofr. Goetz ('Ophthalmia Infantum recens natorum,' Dissertatio Inauguralis, 1791, p. 13) says that venereal blennorhagia and ulcers of the vagina existing at the time of labour can cause ophthalmia neonatorum.

C. G. Selle ('Medicina Clinica,' 6th edition, 1793, p. 395) gives various causes of ophthalmia neonatorum, and amongst them the lochia applied to the eyes of the child.

Dr. Ph. Fr. Walther ('Abhandlungen aus dem Gebiete der practischen Medicin, besonders der Chirurgie und Augenheilkunde,' 1810, vol. i, p. 449) speaks of fluor albus of the mother as a cause of ophthalmia neonatorum.

Professor G. Joseph Beer, of Vienna ('Lehre von den

Augenkrankheiten,' vol. i, 1813, p. 70), says that ophthalmia neonatorum can cause blindness.

In his "Trattato delle principali malattie degli occhi," vol. i, 1816 (pp. 205—208), Scarpa speaks of purulent ophthalmia of the new-born child arising from leucorrhœa in the mother. He advises that the vagina should be syringed before parturition, and that the edges and the inner surfaces of the eyelids should for several days be carefully washed with decoction of mallow.

Dr. William Mackenzie in 'A Practical Treatise on the Diseases of the Eye,' 1830 (p. 360), says, "We have reason to believe that this disease is, in general, an inoculation of the conjunctiva by leucorrhœal fluid during parturition, and that, therefore, it may be prevented in almost all cases by carefully washing the eyes of the infant with tepid water as soon as it is removed from the mother." In the 4th edition, 1854 (p. 466), he further suggests the repeated injection of tepid water or of a weak alkaline solution into the vagina in the first and second stages of parturition.

In his 'Treatise on the Diseases of the Eye,' 1833, (p. 171), Sir William Lawrence says, "In a great proportion of cases there is vaginal discharge from the mother, leucorrhœa and sometimes gonorrhœa." He also remarks on the violence of the inflammation, and on the serious consequences to which it rapidly leads (p. 171).

In the 'Cyclopædia of Practical Medicine' edited by Drs. Forbes, Tweedie, and Conolly, vol. iii, 1834, Dr. Arthur Jacob, speaking of the purulent ophthalmia of infants says, "This is a most formidable disease; indeed, it is probable that the loss of vision from this cause is four times greater than that from all the cases of common purulent and gonorrhœal ophthalmia put together" (p. 216). As to the cause, Dr. Jacob remarks that in the majority of cases the mother labours under either leucorrhœa or gonorrhœa (p. 217). As a preventive he recommends that "a sponge and basin of warm water be ready to cleanse the face and eyes of the infant imme-

diately after birth, and, if possible, before the lids are opened" (p. 218).

Dr. H. Abegg states in the 'Archiv für Gynaecologie' for 1881, Band xvii (p. 502) that in the Lying-in Institution for the Instruction of Midwives at Danzig, he had for several years had the children's eyes washed with pure water immediately after their birth. The result was that in the ten years from 1871 to 1880 inclusive there had been but sixty-six cases of eye inflammation among 2266 children, or less than 3 per cent. In almost all the cases of ophthalmia one eye only was affected. It is not stated what the proportion of cases of ophthalmia had been previously.

It appears then that Credé was not the first to point out the prevailing cause of purulent ophthalmia neonatorum, nor the frequency with which such ophthalmia results in blindness, nor simple preventive measures. But it was he who devised the most effectual means of prevention yet known, and it was he alone who opened the eyes of the medical profession to the momentous importance of the subject. Except the introduction of vaccination by Jenner, nothing greater has ever been done for the prevention of blindness in children.

The chief interest of these historical inquiries lies in their illustrating the fact that, as a rule, useful discoveries are the product of the activity of many minds, and arise by a gradual process of growth and development, instead of springing by a sudden inspiration from the brain of some scientific Zeus like a fully armed Athena.

Dr. Alexander Keiller.

Alexander Keiller was born at Arbroath, Forfarshire, on November 11th, 1811. He died from apoplexy at his country residence at North Berwick on September 26th, 1892, at the age of nearly eighty-one.

In 1833 he became L.R.C.S.Ed. In 1835 he obtained the M.D. degree of the University of St. Andrews, which, in 1886, conferred upon him the honorary degree of LL.D.

He became a Fellow of the Royal College of Physicians, Edinburgh, in 1849.

In 1846 he married Miss Roy, daughter of Major Roy. She survives him, with two sons, one of whom is in the medical profession, and a daughter.

In 1837 he settled in Dundee, and he continued in practice there until 1844, when he removed to Edinburgh at the solicitation of his friends. In 1849 he was appointed to the Lectureship on Medical Jurisprudence in the Medical School, Surgeons' Hall, Edinburgh. In 1853 he resigned that lectureship, and was appointed Lecturer on Midwifery and the Diseases of Women and Children in the same school. In 1884 he resigned the appointment. In 1851 he was appointed one of the Ordinary Physicians to the Royal Infirmary, Edinburgh, and he held the appointment until 1861. During the greater part of that time he devoted his ward to diseases of women by an arrangement with his colleagues, Dr. W. T. Gairdner and the late Dr. Warburton Begbie. Sir James Simpson had obtained a special ward for diseases of women in the Infirmary in 1850. When Dr. Keiller retired from the Royal Infirmary in 1861 he was appointed an Ordinary Physician to the Royal Hospital for Sick Children, Edinburgh, and he held the appointment until 1869, giving clinical lectures on the diseases of children.

In 1859 he was appointed Examiner in Midwifery to the Royal College of Physicians, Edinburgh, and he held the appointment until his death. In 1860 he was appointed an Examiner in Midwifery to the University of St. Andrews, and he held the office until 1892.

He was a candidate for the Chair of Midwifery in the University of Edinburgh in 1870 on the death of Sir James Simpson. In his letter of application he pointed out that frequently, and on several occasions for lengthened periods, he had discharged the duties of the University Chair at the request of Sir James Simpson and with the sanction of the Senatus.

He was elected a Fellow of the Royal Society of Edin-

burgh in 1866. He was President of the Edinburgh Obstetrical Society in 1860–61, and of the Royal College of Physicians, Edinburgh, from December, 1875, to December, 1877.

At the time of his death he was Consulting Physician for Diseases of Women to the Royal Infirmary, Edinburgh; Consulting Obstetric Physician to the Royal Public Dispensary, Edinburgh; and Physician to the Royal Maternity (and Simpson Memorial) Hospital, an appointment which he had held for forty-two years.

He was an independent thinker and a man of strong personality, of high integrity, and of great amiability of character and urbanity of manner. In former days, when I knew him well, I have often heard him sing a good song. He was extremely popular, not only with his patients, but also with the medical profession. His relations with his professional brethren were always most friendly and cordial.

He was a highly skilful and successful practitioner, and an expert operator in obstetrics and gynæcology. His advice and assistance were often sought in cases of difficulty.

He was an expert in medical jurisprudence as well as in obstetrics, and he took part in the trial of many medico-legal cases, in which his special knowledge proved to be of great value.

His pupils have, with one consent, borne testimony to their appreciation of his lectures, which they described as lucid, practical, free from formality, and conversational rather than didactic. They retained afterwards a great respect and affection for their former teacher, and many of them have been distinguished as obstetricians or as gynæcologists.

He was the author of numerous papers, which appeared chiefly, but often in abstract only, in the 'Edinburgh Medical and Surgical Journal' and in the 'Edinburgh Medical Journal.' Prefixed to the testimonials which be printed when he was a candidate for the Chair of Midwifery in 1870 is a list of his contributions and works. He enumerates no fewer than 24 contributions on midwifery, 39 contributions

on diseases of women and children, and 130 papers read before the Edinburgh Medico-Chirurgical and the Edinburgh Obstetrical Societies during the preceding twenty-two years. There is also a list of numerous midwifery and other instruments invented or modified by him.

The following are some of his contributions :—"On spurious pregnancy, with a remarkable case illustrative of the diagnostic value of chloroform;" "On painless contraction of the uterus before and during labour;" "On the diagnosis of shoulder presentation by means of the vaginoscope;" "On the use of 'Keiller's Caoutchouc Dilator' in placenta prævia;" "On retroversion of the pregnant uterus and its diagnosis by means of 'Keiller's Pelvic Auscultator';" "On desquamations of the vaginal mucous membrane, their distinction in diagnosis and treatment from uterine or dysmenorrhœal casts;" "On the operative treatment of vaginal cystocele and rectocele, with cases;" "Cases of intra-uterine cutaneous disease;" "On the causes of death of the child *in utero*;" "Case of intra-uterine ichthyosis;" "On injuries of the infantile head during instrumental delivery;" "Case of congenital goitre;" "On manual strangulation and death by external violence, with experiments and illustrative cases;" "A new mode of diagnosing pregnancy;" and "On the application of reflected light in the diagnosis and operative treatment of uterine and vaginal diseases."

The two instruments with which his name was oftenest coupled were the vaginal stethoscope, shown at the Edinburgh Obstetrical Society in 1855, and his air-dilators, shown at the same Society in 1859. The vaginal stethoscope was intended for the diagnosis of early pregnancy. I show you a specimen.

The air-dilators have been the subject of controversy as to priority of invention. The following are the facts of the case:

On March 9th, 1859, Dr. Keiller made some remarks at the Edinburgh Obstetrical Society "On Air-dilators in Obstetric Practice." His remarks are reported in abstract

in the 'Edinburgh Medical Journal' for July, 1859 (p. 84). He spoke of the air-dilator as providing "a new mode of dilating the os uteri and passages which he had successfully adopted in several cases." According to the report, "the appliance consisted of an ordinary vulcanised india-rubber bag or dilatable pessary, which could be readily introduced in an uninflated state into the vagina or into the os uteri, and afterwards inflated to the required extent by means of an attached syringe or other suitable apparatus for pumping the air." He said that it could be readily and successfully used as either a dilator or a tampon in all cases in which dilatation, compression, or plugging is usually had recourse to in obstetric practice. He exhibited various forms of the dilatable pessary which he had used, and he gave particulars of several cases in which he had employed it. Dr. Graham Weir and Dr. Pattison stated that they had witnessed the use of the air-dilator in some of the cases referred to by Dr. Keiller, and testified to the efficiency and apparent value of the appliance.

On May 11th, 1859, Dr. Keiller related some cases of the induction of premature labour by means of his dilator (see 'The Transactions of the Edinburgh Obstetrical Society,' vol. i, 1870, Appendix, p. 178).

From a paper by Dr. Keiller "On Inducing Premature Labour with Caoutchouc Bags," read at the Edinburgh Obstetrical Society in August, 1862, and published in the 'Edinburgh Medical Journal' in March, 1863; and from remarks made by Dr. Graham Weir at the same meeting of the Edinburgh Obstetrical Society, it appears that the idea of using caoutchouc bags as uterine dilators first occurred to Dr. Keiller's mind from Dr. Graham Weir's directing his attention to the description and sketch of an instrument proposed and used by Mr. (now Sir) Spencer Wells for the dilatation of the urethra by fluid pressure. In the 'Medical Times and Gazette' for July 24th, 1858, Sir Spencer Wells had described and figured an instrument for dilating the female urethra by means of a

catheter surrounded by a tube of india rubber, into which water was injected by a syringe. It was a modification of Mr. (now Sir) Henry Thompson's instrument for dilating the male urethra, and that was a modification of an instrument contrived by Dr. James Arnott.

In the 'Medical Times and Gazette' for June 11th, 1859, the late Mr. Jardine Murray, of Brighton, who had been a hospital clerk to Dr. Keiller two years previously, related a case of placenta prævia in which, on April 16th, 1859, he had used a caoutchouc air-pessary, which he passed flat and afterwards distended with air "with the double object of controlling the hæmorrhage and dilating the os uteri." Speaking of the caoutchouc air-pessaries, he said he believed "that to Dr. Keiller, of Edinburgh, we are indebted for extending their application to the dilatation of the passages in primiparæ and in the induction of premature labour." It is clear, therefore, that Mr. Jardine Murray made no claim of priority in the invention of the air-dilators, although an angry controversy afterwards arose between him and Dr. Keiller on the subject of a particular application of them.

In the 'American Journal of the Medical Sciences' for July, 1859, Dr. Horatio R. Storer, of Boston, who also had previously resided in Edinburgh, published an article entitled "The Uterine Dilator," and described a fluid dilator for inducing premature labour. His instrument was likewise a modification of Sir Spencer Wells's urethral dilator, with gold-beater's skin substituted for caoutchouc, and a Higginson's syringe used for pumping in water. He said that as a dilating agent a liquid was essential, and that the presence of air should be carefully guarded against. He expressed the opinion that his instrument was adapted for use in all complications in labour in which it was desirable to produce immediate dilatation. He suggested its use also in all uterine diseases in which any form of dilator was required and could be introduced. He described a case of contracted pelvis in which he had induced premature labour by the use of his instrument.

In April, 1861, Dr. Robert Barnes read a paper at this Society "On the Indications and Operations for the Induction of Premature Labour and for the Acceleration of Labour." He related five cases in which he had used caoutchouc dilators, introduced empty into the cervical canal, and afterwards distended with water, for inducing or accelerating labour. He said that, induced by the perusal of Mr. Jardine Murray's case, he was employed in devising and in having made for him suitable instruments on the same principle, about the time when Dr. Storer's case of induction of premature labour was published. He had carried out the practice most successfully in a case of placenta prævia in April, 1860. If the cervix was very rigid Dr. Barnes first used small hollow metallic bougies, and, secondly, a series of cylindrical caoutchouc dilators. In the provocative and accelerative stages he used larger cylindrical bags. To obviate a tendency shown by these to slip out of the cervix into the vagina or into the uterine cavity, he had had one made of a fiddle-shape.

In the 'Edinburgh Medical Journal' for July, 1862, there is a short article by Dr. Barnes "On the New Method of Inducing Premature Labour at a Predetermined Hour." He described four cases in which he had used his dilators. The instrument which he then employed was of a fiddle-shape, having when distended a narrower cylindrical central portion, dilating at either end into a bulging or mushroom-like expansion. Three bags of different sizes were sufficient for a series. A small pouch was attached outside to receive the point of the uterine sound which was used to push the bag into the cervical canal. An ordinary Higginson's syringe was used for injecting the water. The superior shape of Dr. Barnes's bags has led to their general adoption, to the exclusion of Dr. Keiller's.

Dr. Keiller always held that he had not received from the profession generally the credit due to him. I think that the foregoing account affords sufficient proof of his priority.

Before quitting this chair, which by your favour I have had the honour of occupying for the last two years, I desire to offer my warmest thanks to the Society at large, and especially to the Council and to the Honorary Secretaries, for their great forbearance and for their never-failing support and assistance.

It was then moved by Dr. PLAYFAIR, seconded by Dr. BRAXTON HICKS—"That the best thanks of the meeting be given to the President, Dr. J. WATT BLACK, for his excellent address, and that he be requested to allow it to be printed in the next volume of the 'Transactions,' and further thanks for the very efficient manner in which he has presided over the meetings of the Society during his term of office."

This was carried with acclamation.

The Scrutineers having presented their report, the result of the Ballot was declared by the President as follows:

OFFICERS AND COUNCIL.

President.—G. Ernest Herman, M.B.

Vice-Presidents.—Thomas Charles Steuart Corry, M.D. (Belfast); Alban Doran; Edwin Hollings, M.D.; William Appleton Meredith, M.B., C.M.; John Knowsley Thornton, M.B., C.M.; Harry Speakman Webb (Welwyn).

Treasurer.—John Baptiste Potter, M.D.

Chairman of the Board for the Examination of Midwives.—Francis Henry Champneys, M.A., M.D.

Honorary Secretaries.—Peter Horrocks, M.D.; William Duncan, M.D.

Honorary Librarian.—W. Radford Dakin, M.D.

Other Members of Council.—Fletcher Beach, M.B. (Dartford); Andrew Brown, M.D.; Edward Clapham, M.D.; Frederick William Coates, M.D. (Salisbury); Charles James Cullingworth, M.D.; Archibald Donald,

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Dr. PRIESTLEY moved and Dr. MALINS seconded—"That this meeting also expresses its best thanks to the retiring Vice-Presidents, Dr. Percy Boulton and Mr. F. H. Gervis, and to the retiring members of Council, Dr. Johnston, Dr. Lediard, Dr. March, Dr. Potter, Dr. Prickett, Mr. Read, Mr. Sams, and Dr. John Williams."

MARCH 1st, 1893.

G. Ernest Herman, M.B., President, in the Chair.

Present—43 Fellows and 6 visitors.

Books were presented by Dr. J. Watt Black, Dr. Minot, Dr. Ludwig Kleinwachter, The American Gynecological Society, the St. Bartholomew's Hospital Staff, and the University College Hospital Staff.

Thomas Watts Eden, M.D., C.M.Edin.; Ewan John Maclean, M.D., C.M.Edin.; William Trethowan, M.B., C.M.Aber.; and William Francis Umney, M.D.Lond., were admitted Fellows of the Society.

Sydney Nevill Harrison, M.B., B.C.Cantab. (Stourport); Walter George Lowe, M.D.Lond., F.R.C.S. (Burton-on-Trent); and Robert Milne Murray, M.B.Edin. (Edinburgh), were declared admitted.

The following gentlemen were elected Fellows:—William Betenson Betenson, L.R.C.P.Lond.; and John Jordan Harvey, L.R.C.P. & S.Edin. (Nottingham).

FŒTUS WITH HERNIA UMBILICALIS CONGENITA AND SPINA BIFIDA LUMBO-SACRALIS.

By Amand Routh, M.D.

The specimen was shown at the December meeting ('Transactions,' vol. xxxiv, p. 463).

There is failure of closure of both the visceral and neural arches.

Through the anterior cleft the small intestines, liver, spleen, and kidneys and bladder are extroverted, and posteriorly there is a spina bifida lumbo-sacralis. There is also absence of the external genitals, and the feet are clubbed.

The child presented by the abdominal tumour, being latero-flexed to right and retroflexed *in utero*. When the thin covering of the visceral sac gave way a piece of intestine presented, and Mr. Oldfield proceeded at once to introduce his hand and drew down a foot, and the child was then delivered without much delay.

The vessels of the cord appear to have coursed through the wall of the sac on the right side, and the cord itself was not shorter than normal, so that the retroflexion cannot be explained here by the shortness of the cord, which was thought by the late Dr. Matthews Duncan to be the usual cause.

Report of Committee, nominated December 7th, 1892, *on Dr. Amand Routh's specimen of Fœtus, showing Ectopia Viscerum with Retroflexion* ('Transactions,' vol. xxxiv, p. 463).

We the undersigned, after examining the specimen named above, have drawn up and signed the following report:—

A fairly nourished fœtus of about seven months, with flexion of the vertebral column backwards and to the left side, and prolapse of all the abdominal viscera.

Abdomen.—The opening in the abdominal wall extends from the epigastrium to the pubic region, and the viscera are partially enclosed in a membranous sac continuous with the abdominal wall. The umbilical cord is apparently unrepresented, but there are vessels in the membranous sac (amnion) above mentioned. The prolapsed viscera include liver, spleen, stomach, and end of œsophagus, pancreas, kidneys and adrenals, small intestine, and a malformed colon.

External genitals.—Not distinctive. There is a definite perinæal space ¼ of an inch wide, in front of which is a thick fold of integument 1½ inches long, extending upwards from the inner side of the right thigh to the middle of the left groin. The fold contains no genital glands. Immediately in front of this fold are two flattened, corrugated tags (possibly nymphæ) which are united in the median line. Still further in front is a smooth triangular area, continuous at its apex and sides with the membranous sac, and having at its base the slit-like opening of the intestinal tract (anus vesicalis). There is no anus in the natural situation.

Dissection of abdominal viscera.—The liver is much deformed—no gall-bladder discovered. Stomach, spleen, and small intestines normal. Coils of intestine much adherent from peritonitis. The lower end of the intestine opens into a transversely elongated cavity, which in turn communicates with the exterior by the slit-like orifice already described. Opening into this cavity on either side of the small intestine are two small tortuous tubes which measure 1 inch (R.) and ½ inch (L.), and are blind at their free extremities.

The kidneys are large, and have the adrenals attached to them. Large ureters proceed from them (the right appears to be impervious), and can be traced to the triangular area above described, where they end apparently

blindly by the side of the intestinal opening. No developed genital glands or ducts are to be seen.

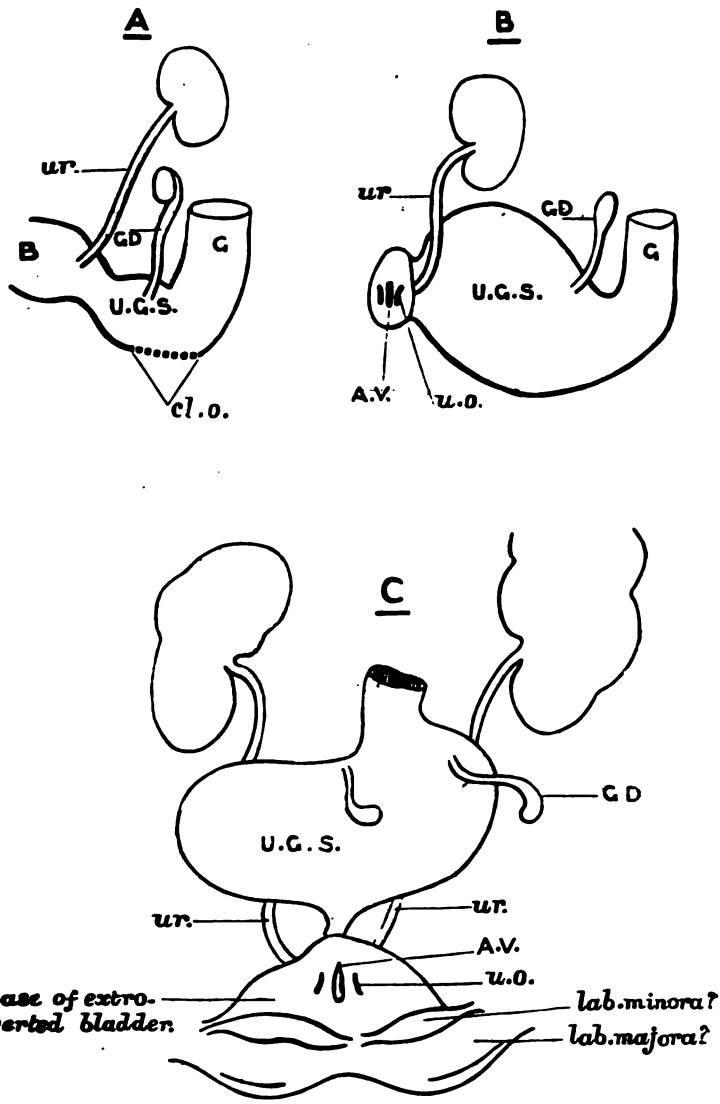
Osseous system.—The pubic bones are widely separated, the crest of the left os innominatum is much everted from the pressure of the lower ribs on the left side. The left hip-joint appears normal. In the lumbar region of the spine there is a large spina bifida, the size of a fœtal head. On laying it open the expanded lower end of the spinal cord is seen on the floor of the sac, and nerves can be traced into its wall. It communicates with the spinal canal by a comparatively narrow neck. All the ribs on the right side are acutely flexed at their angles, so that the right side of the thorax is flattened and displaced forwards and to the left. The left side of the thorax is bent out, so that the line of the angles is marked by a shallow concavity. The lateriflexion of the spine has taken place opposite the mouth of the spina bifida.

Thoracic viscera.—Lungs unexpanded ; pericardium, heart, and diaphragm normal.

Limbs.—Upper extremities normal. Right foot shows distinct talipes equino-varus ; the left foot is in the position of talipes calcaneus. The right hallux is in a condition of extreme over-extension of first phalanx with flexion of the terminal phalanx. There is no external deformity of the cranium or face.

By way of accounting for the deformities found in the pelvic organs in this case, the following suggestions are made.

The normal cloacal orifice (*cl. o.*) failed to develop, and the hind gut continued to communicate with the allantoic cavity (U. G. S. and B). The uro-genital sinus (U. G. S.) remained continuous by a much contracted orifice with the anterior (bladder) part of the allantois (B.). This orifice now forms an anus vesicalis (A. V.). The bladder, however, is in a condition of extroversion from the non-closure of the abdomen and pubic arch. The small tubes opening into the sac represent either the Müllerian or Wolffian ducts (G. D.).


A
ur.
GD
B
G
U.G.S.
cl.o.
B
ur.
GD
G
U.G.S.
A.V.
u.o.
C
G D
U.G.S.
ur.
ur.
A.V.
u.o.
Base of extro-verted bladder.
lab.minora?
lab.majora?

The ureters run to the flat surface of the extroverted bladder, and open (u. o.) one on each side of the anus vesicalis (a. v.).

The absence of umbilical cord necessitated by the anatomical conditions, the distortion of the skeleton, and the spina bifida render this specimen closely comparable to fœtuses described by one of your committees in vol. xxxii of our 'Transactions' (1890), pp. 200 and 368.

W. R. Dakin.
J. H. Targett.
Alban Doran.
Amand Routh.

TUBO-OVARIAN GESTATION.

By E. J. Maclean, M.D.

Specimens were exhibited as obtained from the necropsy of a married woman aged 30, who two years previously, and after eight years' sterility, had manifested typical symptoms of extra-uterine gestation with rupture of the sac at about the second month. Though the physical signs of copious blood effusion were then present, she rallied and made a partial recovery. She remained, however, in a very indifferent state of health; progressive emaciation and asthenia, with finally some symptoms of sapræmia, terminating in death in January, 1893.

Three weeks before death much pus and mucus with a pair each of tibiæ and fibulæ, a left ilium, a left ulna, and fragments of squamous skull-bones of the fœtal skeleton at about the fifth month were passed *per rectum*.

At the post-mortem examination, whilst no signs of general peritonitis attained, evidences of left tubo-ovarian pregnancy with rupture of the gestation sac intra-perito-

neally into the pouch of Douglas appeared distinct. There had doubtless been subsequent fœtal development in the pouch, the roof of the secondary sac being formed by matted intestine and adventitious inflammatory material. This sac contained fæces and decomposing fœtal remains, the connection with the bowel being through a large sloughed perforation of the rectal wall in the floor of the pouch.

The obtainable fœtal bones were shown, arranged as far as possible in skeletal relation, mounted on black painted wood. There were no evidences of twin gestation.

A CASE OF TRIPLETS AND COMPLETE PLACENTA PRÆVIA IN WHICH THE CHILDREN WERE DELIVERED ALIVE THROUGH A PERFORATION IN THE FIRST PLACENTA.

By Herbert R. Spencer, M.D., B.S.

The specimen shown consisted of three separate placentæ with their membranes from a case of triplets; a hole could be seen through one placenta which completely covered the os uteri (central placenta prævia), and through the hole, which was made with the fingers, all three children were delivered alive by the breech.

The history of the case is shortly as follows:—Mrs. M—, aged 29, who had had one child and two miscarriages, menstruated for the last time early in September, 1890. The patient noticed no unusual symptom till the fifth month, when, during a violent fit of coughing, she lost about a pint of blood, which soon ceased to flow. Ten days before her confinement she again had a slight loss, and on the day of her delivery, April 9th, 1891, she lost a few ounces, and sent for advice to University College

Hospital, and was seen by the obstetric assistant, Mr. P. Evans, who, finding that it was a case of placenta prævia, sent for me. She was still bleeding slightly. On arrival I found a small, somewhat delicate woman, not much blanched, and with a good pulse of 100. The patient was suffering from bronchitis, which she had had for some weeks.

The abdomen was distended rather more than usual at full term. The fundus reached to the ensiform cartilage, and the antero-posterior diameter of the abdomen was unusually large. There were no uterine pains, but the abdomen was tense and rather difficult to examine. No fœtal parts could be felt in the lower segment of the uterus. At the left side of the fundus a small mobile body could be detected. It had the characters of the head, its mobility being easily detected by means of a sign I have termed "succussion," which was obtained by shaking the head between the widely stretched fingers and thumb. If the presenting part rapidly moved from fingers to thumb, and *vice versâ*, it was a head. From this head, however, the body could not be traced, nor could the resistance of the back of this child be anywhere obtained. On the right side of the body of the uterus just above the middle was another fœtal pole, which was clearly a head. From this the limbs could be traced, and the child was found to be lying transversely. External pelvic version was easily performed. On the left side of the lower segment and somewhat in front was a soft, indistinct resistance, the edge of which could not be defined. It was thought to be placenta. Except where specified the rest of the uterus gave indistinct signs to palpation. The third fœtus was not felt. I determined to make a more complete examination under chloroform, which was accordingly administered. But, as the patient lost three or four ounces of blood, I abstained from further external examination. By the vagina the os was of the size of half a crown, soft and dilatable, and completely covered with placenta. Judging from the external exa-

mination that but a small part of the placenta was attached to the right side of the os, I proceeded to separate it on that side; but finding that I was mistaken (the placenta on the left side of the uterus was the second placenta), I tore through placenta and seized a leg, and, with slight traction, easily delivered the child alive. I now ruptured a second bag of membranes, and delivered a second child by the breech, but had to clamp and cut the cord in the vagina before it could be born, owing to the shortness of the cord.

A little bleeding occurred after the birth of each child. I now ruptured a third bag of membranes, and delivered the third child also by the breech. The children were feeble at birth, but soon revived; the first-born lived four, the second eight, and the third thirty-two hours. The uterus retracted fairly well; but, as hæmorrhage occurred, the placentæ were removed by the hand. The mother was somewhat blanched, and lost at least a pint of blood during delivery. The third placenta was attached to the upper part of the body of the uterus, and, being adherent, was removed by the hand. The whole period of delivery took three-quarters of an hour; there was an entire absence of uterine pains. The temperature usually varied between 100° and 101° for the first twelve days of the puerperium; on two occasions it rose as high as 103·6°. The pulse was 120 after delivery, but gradually fell, and both it and the temperature were normal after the fourteenth day, at which time the fundus was in the pelvic brim. The patient was somewhat weak for a month, but finally recovered robust health.

This is the only case of triplets which I have personally attended, and there has only been one other case in nearly 13,000 labours at University College Hospital. It is also rarely that a living child is born through a hole made in a central placenta prævia. The case shows the difficulty of abdominal palpation of the fœtuses owing to the extensive attachment of the placentæ in some cases of plural births.

The post-mortem examination of the children showed a hæmatoma in both sterno-mastoid muscles of the firstborn child, in the right muscle of the second, and in the left of the third child; the last had also a clot in the left lateral ventricle.

	First child.	Second child.	Third child.
Sex . . .	F.	F.	F.
Length . .	15¼ in.	15¾ in.	15¼ in.
Weight . .	2 lb. 7½ oz.	2 lb. 8 oz.	2 lb. 6½ oz.
Placenta weight .	12¾ oz.	12 oz.	13½ oz.
„ length .	7½ in.	7½ in.	6¾ in.
„ breadth .	6 „	5¾ „	5 „
„ thickness .	⅝ „	⅝ „	½ to ¾ in.
Length of cord .	13½ „	10½ „	15 in.
Insertion of cord .	Central	Excentric	Membranous.

INAUGURAL ADDRESS.

My first duty is to thank you very heartily for placing me by your vote in this most honourable position. The highest reward that a physician can obtain is the approbation of his professional brethren; and he must value most of all the good opinion of those whose line of work and practice is the same as his own. Election to this chair is a great honour as an expression of this approbation; and its dignity has been enhanced by the names and the fame of those who have occupied it in the past.

It is an honour which brings with it duties. The mind of an incoming President naturally turns to the contemplation of those duties; to the consideration of how he can best serve the Society,—that is, how he can help it to fulfil the object for which it was instituted.

It was founded, as its first rule states, "for the promotion of knowledge in all that relates to obstetrics, and the diseases of women and children." It does this in three ways; by publishing 'Transactions,' by holding meetings, and by maintaining a library.

As to the Library, little need be said. The Library Committee add to it every publication of importance. We have an excellent Librarian, most attentive to the wishes of Fellows; and the arrangements for reading and the circulation of books are as good as those of any library that I know of.

The great business of the Society, and its highest ambition, is the yearly publication of a good volume of 'Transactions.' The 'Transactions' are the record of what has taken place at the meetings. They consist of carefully prepared papers which have been read at the meetings, of the discussions on those papers, and of

descriptions of specimens shown at the meetings before the reading of the papers. The aim of the Council and officers is so to conduct the meetings and the publication of 'Transactions' as to attract the greatest possible number of scientific memoirs; for it is upon them that the value of the 'Transactions' and of the meetings mainly depends.

But the work of the Society is not merely that of publication. It holds meetings. The discussions on the papers consist of expressions of opinion which would probably never have been given to the world had they not been spoken at the meetings. Many of the specimens described in the 'Transactions' would probably have escaped record had not the occasion of the meeting prompted their exhibition. The carefully prepared scientific memoirs, which form, so to speak, our staple fare, have most of them an intrinsic value quite independent of the discussion upon them, and might be printed if there were no meetings; but the comments upon the papers and the specimens shown are the direct result of having meetings, and distinguish the 'Transactions' from an ordinary journal.

During the life of this Society many changes have been made in its laws, and also in the standing orders of the Council,—all these changes with the same object, that of making the 'Transactions' better and better. A committee has recently been appointed to again go over the laws, and report in what ways they may with advantage be amended. It seems to me, therefore, that the present is an appropriate time to say a few words about the difficulties with which the Council has to deal in regulating the meetings, and to offer such suggestions as I can for the improvement of our proceedings.

One of the greatest of these difficulties has been the question of the best allotment of time for the exhibition and discussion of specimens. The present rule (chap. xvii, section 3), which I believe has existed from the foundation of the Society, is that "the business of the

ordinary meetings shall be the exhibition of pathological or other specimens and objects, the reading of short papers and cases, and oral communications, during the first half-hour of the meeting." But nearly a quarter of an hour is necessarily occupied with the formal business (the reading of the minutes, of the list of presents, of new Fellows proposed, &c.), leaving only about fifteen minutes for the objects specified in the rule. But almost from the first, and certainly during the last seventeen years, the wealth of specimens has been so great that I have never known the clause sanctioning the reading of short papers during this half-hour to be acted on, and only once that authorising oral communications. For many years the supply of papers was not large enough to delay their reading so long as to be a hardship. While this was the case, the half-hour rule was practically ignored; every Fellow who brought a specimen could show it, and discussion on the specimens was unrestricted by any time limit.

But the Society has grown. The number of active scientific workers in the field of obstetrics and gynæcology is much greater than it was when the Society was founded; and in consequence during later years the supply of papers has been so rich that nearly a year has often passed between the sending in and the reading of a paper, not to speak of the further unavoidable delay between reading and publication. A comparison of the earlier with the later volumes of the 'Transactions' will, I think, show anyone that not only are there more papers, but that the later papers are more ambitious in design, more scientific in their method, and more thorough in execution.

For some years the executive of the Society has felt that it was unfair to those who gave much hard work to the preparation of papers for the Society that their communications should be postponed in favour of contributions involving but little labour, but taking precedence by reason of their comparative insignificance. It was also contrary to the best interests of the Society, for we cannot expect

the best work to be brought here if our procedure involves a delay of a year or two before publication.

The practice of the Society has, therefore, of late years undergone a change in the direction of closer adherence to the original rules. The descriptions of specimens and discussions upon them at one time were as fully reported in the medical journals as the proceedings arising out of the papers; but now, in order that fuller reports of the papers may be given, the specimens are only mentioned. It has been the practice of the later Presidents to accelerate as much as possible the showing of specimens, in order that more time might be given to the papers; and my immediate predecessor in this chair has kept to the letter of the law, and ruled that the exhibition of specimens should cease at the end of the legal half-hour, unless the meeting decided otherwise by a special vote.

I cannot think that anyone would seriously propose that a Society which can command a supply of carefully prepared original work for consideration at its meetings should run any risk of letting these be lost to it in order that a number of specimens should be looked at.

There is another objection to the multiplication of specimens. Not only do they occupy our limited time, but they take up room in the 'Transactions,' and cause expense in paper and print; and not every specimen is worth this. In the case of papers, the facts that the author has prepared it at his leisure, and that before being accepted by the Society it has been reported upon by referees, is a sufficient guarantee of its value. Anyone who will look through our 'Transactions' will find hardly a paper from which some instruction may not be gained.

But although, for the reasons given, the force of which I think every one will admit, a supply of good papers is far more important to the Society than a supply of specimens, yet I think that the specimens do form a most valuable part of our meetings, and ought not to be discouraged, but rather to be invited; and that the aim of

our arrangements should be, not to diminish the number of specimens, but to lessen the time taken up in their exhibition, and to get for the 'Transactions' records as complete and accurate as possible. A critic might add, to keep out of the 'Transactions' descriptions of commonplace things; but if well examined and completely described, hardly a specimen is commonplace.

It seems to me that the papers make our 'Transactions,' but the specimens our meetings. A concisely worded and closely reasoned paper is often hard to follow: the modesty and fewness of its critics are in proportion to its excellence. If, as is the case with most original work, it deals with a very limited subject, it may only interest a few, and of those few some may reflect that they are sure to be able to read the paper afterwards in the 'Transactions.' These considerations make me think that if the reading of papers were the sole business of our meetings, the audiences might sometimes be very select indeed.

During the last few years much has been done to facilitate discussion. The papers are left in the Library during the week preceding the meeting, and abstracts are printed and circulated in the room before the reading. In this way Fellows are able to make themselves fully acquainted with the papers to be read, and so to do themselves and the author justice in their criticisms.

I trust I may be pardoned for expressing here an opinion which I have expressed at the Council, but which was not shared by the majority of that body. The custom of this Society, following that of the Royal Medical and Chirurgical Society, has been that the papers are always read by one of the Secretaries. We are now the only Society that strictly adheres to this old practice. I think it would be better if the author were allowed, if he pleased, to read his own paper, to omit in reading such parts as could not be easily followed, and to amplify, if he thought fit, when he judged his meaning not easy of apprehension. The object of the reading is to bring the

author's thought and results before the mind of the audience, and no one can do this, as a rule, so well as the author himself. Of course there are exceptional circumstances in which the author would prefer that the Secretary should read his paper for him.

The usefulness, peculiar to the meetings, which could not be attained in any other way, is the exhibition of specimens. A Fellow may stay away from the meetings and yet read the papers and discussions, but he cannot see the specimens unless he comes to the meetings. The exhibition of a specimen is a different thing from its description. No description can convey so correct an idea, nor so impress itself upon the memory, as actual inspection. A description may be erroneous or defective, but when a specimen is handed round any mistake made by the exhibitor is pretty sure to be corrected, and points of interest overlooked by him will be perceived by others. Some of the most valuable parts of our 'Transactions' consist of descriptions, discussions, and reports about specimens. In some other societies—the Medical and the Hunterian—"clinical evenings," as they are called, which are practically evenings for the exhibition of living specimens, are found the most instructive and best attended meetings of the session. The department of medicine with which we here concern ourselves cannot be helped on in this way, but the exhibition of diseased parts is the next best thing to the exhibition of patients.

The objections to the multiplication of specimens are that they take up the time of the meeting, and so delay the reading of papers; that they take up room in the 'Transactions,' and cause expense in paper and print; that, if numerous, some would sure to be shown which, either from their commonplace character or from the paucity of the information about them, were not worth the time of the meeting or the cost of print; and that specimens which really demonstrate some novel point can be described in a paper and shown when the paper is read.

It seems to me that a saving of time might be effected by adopting the practice of the Pathological Society of showing specimens by card. In many valuable specimens this would answer every purpose. To us I think it would be still more useful than to that Society, for we have a class of exhibits for which it would be specially suitable, viz. new instruments, drugs, invalid appliances, &c. A display of these things is most useful to every practitioner, and by questions and replies concerning them much information is given and received. But it would be intolerable that the publication of scientific memoirs should be delayed that things of this kind should be looked at and talked about, or that the space in the 'Transactions' should be taken up with tradesmen's advertisements. But if these humble aids to successful practice were laid upon the table and accompanied by a card, they could be discussed in conversation before and after the meeting much better than in public debate; and if the Society wished to give its Fellows further information about these things, the proper place would be in some advertisement pages at the end of the volume, in which all commercial details could be fully stated. So long as neither the time of the Society is taken up nor its funds expended, there need be no limit to the number and variety of the things shown in this way.

Assuming, however, that among our wealth of specimens material needing discussion was contributed so abundantly that the short time available proved insufficient, I would suggest that a distinction be made in our laws, which has often been made in practice by the tact of the Secretaries and the good feeling of Fellows, between fresh and preserved specimens,—that is, specimens the characters of which will perish if not shown at once, and specimens that can be kept for any length of time; and that perishable specimens be given the priority, preserved specimens being postponed. The inconvenience of such postponement has consisted in this, that specimens could not be left in our meeting-room. But we have now a place in our Library

in which preserved specimens might very well be kept until the meeting at which they are to be shown. If by such postponement a stock of reserved specimens were accumulated, then it seems to me worth consideration whether we might not occasionally have an extra meeting devoted solely to specimens. If at such a meeting the Fellows would be good enough to entrust the arrangement of the specimens to the Secretaries, a number of specimens illustrating similar morbid conditions might be grouped together, and thus a most instructive programme might be arranged. At a meeting thus convened full particulars of what was going to be shown could be announced beforehand, and thus those who wished to study a particular subject might come to the meeting with the certainty of being rewarded.

The only alternative to some such arrangement seems to me to be to alter the rule, and allow a longer time for exhibition of specimens, which would have the serious drawback of curtailing the time given to the papers. Anything which might have the least tendency to divert from the Society the best class of papers would, I think, be a great mistake. But the present system, by which the law is regularly violated, either with the tacit consent or the formal vote of the meeting, seems to me to call for alteration.

But we shall not attain the maximum of utility if we simply get a large number of specimens shown at our meetings, or even if we get these specimens exhibited and discussed without causing delay in the reading of papers. We want good reports of them for the 'Transactions.' We are not, like a sister Society, confined to the pathology of diseased parts; we want morbid anatomy, but the clinical history of disease, the difficulties of diagnosis, and treatment are all within our province. Each specimen that is shown with a complete clinical history, and which has been well examined, is like a medical case authenticated by a post-mortem examination. A volume of such cases is a storehouse of facts that

can never lose its value. Our 'Transactions' cannot have too many of them. One of the most important questions that the Council has before it is the best means of securing that the descriptions of specimens, and the facts relating to them, shall be full and correct.

For some years the Council and officers have been trying to improve the 'Transactions' by more careful editing. In the early years of the Society the senior Secretary was the editor; but latterly the Council has appointed an editor and a Publication Committee, the latter consisting chiefly of senior Fellows of the Society. This Committee considers what is to be put in the 'Transactions.' The Council reserves to itself the decision as to the papers. The Committee decides as to the specimens, and has aimed at the inclusion only of such as are so fully described as to be worth permanent record. It is not the function of this Committee to improve the reports before it. The utmost it can do is to point out to the writer any obvious and easily supplied omissions, and ask him to make them good.

The only machinery that we have for securing fuller reports of the specimens than those furnished in the first instance is the appointment of special committees. It sometimes happens that the unusual interest or debatable character of a specimen is recognised by some one present at the meeting, who moves that a committee be appointed to report upon it. The reports of such committees are among the most valuable parts of our 'Transactions.' But they are very few, and their increase seems to me most desirable. The appointment of a committee depends upon the presence at the moment of some one who perceives the need for further inquiry, and it has happened that specimens on which the report of a committee was most desirable have been shown at a time when this condition was not fulfilled. The small use that has been made of this means of improving the 'Transactions' will be realised when I say that on looking through the last three complete volumes of 'Transactions,' those for 1889, 1890, and 1891, I find that 158 specimens were

exhibited (an average of five an evening) but only eight of these were referred to committees. In the case of 49, or nearly one-third, either no description at all was sent in, or the description sent was not thought worthy of publication. I think I shall express the opinions of all those who have the best interests of the Society at heart when I say, that for a Fellow to take up the time of the Society with a specimen which he does not think worthy of careful description is to take a great liberty with the Society, and to show it marked disrespect.

At the Pathological Society the practice with regard to specimens was at one time much the same as our own at present. If a specimen was thought of special interest a committee was appointed to report upon it, and that committee reported to the Society. The practice now is that the committee which examines and reports upon the specimen is part of a larger permanent body, and the report is submitted to that body, which either approves or rejects or alters it, and the report put before the Society and published in the 'Transactions' is one adopted and signed by this large committee. Our Publication Committee only decides whether the report of a specimen is or is not worth printing in the 'Transactions;' it is in no way responsible for the correctness of that report, or even for its completeness. Sometimes the Publication Committee has asked gentlemen who have described specimens to add further information; but sitting as that committee does, at a time when it is desirable that the printing of the 'Transactions' should go on as quickly as possible, there is often not time for improvements even of this kind to be made.

I would suggest that if in our Society a permanent committee were appointed, some members of which should examine, in co-operation with the exhibitor, all specimens worthy of investigation and report to the full committee, we should more effectively promote the full and accurate description of our pathological material than can be done indirectly by the action of the Publication Committee. Such a committee as I imagine would deal with the

specimens themselves, not merely with reports of specimens. As each exhibitor would form part of the sub-committee dealing with his own specimen, if his description were not thought worthy of publication, he would know the reason. Such a committee, if composed of Fellows whose engagements allowed them to give time enough to the work, would improve and complete the descriptions, would assist those who brought specimens to the Society to learn, would attract a supply of good material; and I think its work would be found so interesting that there would be no difficulty in inducing the most competent of our Fellows to undertake it.

The often quoted sentence of Bacon, that "the whole art of medicine is in observation," has lost none of its truth by age, and can lose none by repetition. A more modern writer than Bacon has said, "Very, very few are the men who can, by and for themselves, see and describe the things that are before them." Bibliographical research, abstract reasoning and speculation, grace of literary style, are all admirable, each in its place; but in medicine that place is always a secondary one to observation. The great work of this Society, if it is "to promote the knowledge of obstetrics and the diseases of women and children," must be to stimulate, to correct, and to record observations. The great advantage which a Society offers, as compared with a journal, as a medium for the publication of observations, is the presumption that, by debate, error is corrected and omission pointed out. In proportion as we, by our rules, make this perhaps sanguine presumption a reality, will our 'Transactions' gain in value and our Society in reputation.

It is inevitable, but not, I think, to be regretted, that most of the work brought before our Society should be clinical; that is, directly and not indirectly practical. There is a feeling in some Societies, tersely put by Dr. Billings, that it is "bad style to be practical." If practical means corresponding with the facts of practice, then everything should be practical. If it means that which is directly useful in practice, then a really prac-

tical paper is the highest and rarest fruit of research, and the richest gift that can be offered to us. But it is precisely because a practical result is so splendid an achievement, that it is so often attempted without consciousness of the extreme difficulty of attaining it; and enthusiasm too readily accepts the appearance for the thing itself. Hence it comes to pass that so many papers which try to be practical are found to collapse when tested by practice. It is the frequency of such empty attempts which leads many to pass so-called practical papers without reading them, unless vouched for by some trusted name, and to look on practical papers as "bad style." But this is not a reason for renouncing practical papers. In our Society, the youngest and most promising branch of research, bacteriology, is hardly represented at all. From unavoidable circumstances, few of our Fellows can become experts in pathological anatomy. The line along which it seems to me that the best work of this Society is to be done is the clinical study of the natural history of disease. This knowledge is indispensable for right judgment as to supposed processes of cure, although it has too often been left out of sight.

During the lifetime of this Society, in few departments of medicine can such progress be chronicled as in the one with which we are chiefly concerned. In obstetrics, the improvements of the Cæsarean section, and the recent revival of symphysiotomy, give good promise of realising the dream of one of the founders of this Society, viz. the abolition of craniotomy. The success of these operations has been greatly helped by the patient study of the different forms of contracted pelvis, and their effects upon labour, for which we are so largely indebted to Germany, and which has made possible the early diagnosis of the conditions calling for these operations, and therefore their performance before the patient's state has been rendered critical by prolonged labour and injuries inflicted by vain attempts at delivery. I need not repeat the familiar tale of the triumph of surgery over ovarian and uterine

tumours. Although there is not yet unanimity as to when and how surgery should interfere in the treatment of pelvic suppuration and pelvic cancer, yet no one can dispute that our power, both to give relief to suffering and to save life, has been enormously increased. It is always the case that where there is progress there is controversy; just as over the strip of sea-shore on which the advancing tide is breaking there is noise and foam and destructive action, while over that part of the beach which is completely submerged there is smooth water.

The serious morbid conditions which we are now able to treat so successfully by the operations to which I have referred, were well known as such long before our present modes of treatment were devised, and most of them could be diagnosed with some approach to certainty. The natural order has, upon the whole, been followed; treatment has waited for diagnosis, and diagnosis has been constantly tested by dissection before or after death.

But it has been otherwise with what is known as minor gynæcology. Yet sound knowledge about the minor diseases of women is not one whit less important than the ability to cure those which are more often fatal. The minor cases are infinitely more common, they last a great deal longer; though life is not threatened by them the happiness of life is, and bad treatment can do as much mischief as good treatment the reverse.

The natural and right tendency of investigation is to go first to the organ which seems to be diseased, and look for changes in it which can be perceived by the senses. This first step in research applied to the pelvic organs has led to the discovery of various changes in the parts, some of them acknowledged to be important, others about which opinions differ so widely, that a patient may get the most opposite advice from gentlemen whose reputation and professional position appear to entitle them to equal confidence. While this is still the case, it cannot be said that advance in minor gynæcology has been great, although there has unquestionably been progress.

Why is it that the men who have achieved so much in combating the diseases more dangerous to life, have been so comparatively unsuccessful in dealing with the minor disorders? The reason lies, I think, in the inherent difficulties of the subject. If good work is to be done in this department of medicine, these difficulties must continually be kept in mind:—

1. There is the liability to error which attends the diagnosis of every internal disease which neither kills nor calls for surgery. Such diagnosis cannot be verified by inspection; and therefore experience consists in the multiplication of observations, many of which, it is possible, have been misinterpreted. In such cases the only verification possible is that furnished by the after history of the case. Hence the extreme importance, in our department, of complete records. A case of fatal disease is rightly held to be valueless as a basis for conclusions unless the clinical inferences are verified by an autopsy. In a case of non-fatal disease we must always wait for the best substitute for a post-mortem, viz. the after history. This is one reason for slow advance, but it is not one peculiar to minor gynæcology, although it is inseparable from it.

2. A second reason is a very obvious one, viz. the delicacy which forbids the routine examination of the parts in the healthy, and therefore has over and over again allowed conditions compatible with perfect health to be thought morbid, until the slow accumulation of accidental opportunities for examining the healthy gradually revealed the truth. For the same reason there are causes of disease, possibly very potent, the effects of which cannot be tested in any scientific manner. There are scarcely any diseases, about the causes of which we know so little, as the disorders of female adolescence—dysmenorrhœa, chlorosis, the delay of menstruation in florid fat girls, for instance. In the study of these diseases we might expect great help from the advantages possessed by lady doctors; and perhaps this may be to come.

3. The great difficulty in the practice of minor gynæ-

cology arises from the close connection of the emotional life of women with the generative function. With this function are associated the chief events in a woman's life, those with which her happiness, and in most cases her highest aspirations, are bound up. The wide-reaching effects of disorder of this function, both upon the patient herself and upon others, need no pointing out. Many able writers have enlarged upon them; but the books which descant most fully upon the influence of the uterus on the nervous system, seem to me too often to leave out of sight that this influence is reciprocal. It is quite true that a patient's nervous health may be disorganised by a series of morbid influences which some slight pelvic disorder initiated. But it is also true that a weak nervous system, an unoccupied and unhappy life, together with that little knowledge which is so dangerous a thing, and bad advice, may make the patient attach factitious importance to some trifling local complaint, torture herself with the fear of terrible consequences which will never come, or even by expectant attention develop local morbid sensations without any local disease at all.

The most difficult problem in minor gynæcology is to distinguish symptoms which depend upon local changes from those which merely accompany them. The "case," as we have to treat it, is the product of two factors—the local morbid change and the patient. We have, as it were, to look at the disease through the patient.

The witty author of 'The Autocrat of the Breakfast Table' has told us that when Thomas sees a man called John, there are really three Johns. There are—(1) Thomas's ideal John; the John as Thomas thinks of him. (2) John's ideal John; the John as he thinks of himself. (3) The real John.

In most cases of minor gynæcology there are three diseases:—(1) The disease as the patient thinks it. (2) The disease as the doctor thinks it. (3) The real disease. To these often a fourth is added—(4) the disease the patient thinks is coming.

We all have presented to us, in the first instance, the disease as the patient thinks it. Our usefulness to the patient will depend upon the closeness of our conception to No. 3, rather than to No. 1.

There are few men who do so much harm as those who unite good intentions with faulty judgment in this respect, who with unfeigned sympathy with the patient, and with an anxiety to cure her so genuine that it wins entire confidence, listen to the enumeration of nervous symptoms, accept the patient's theory of the disease, and only see, in the failure of one kind of local treatment after another, a proof that the local disease has not been treated thoroughly enough.

Take, for instance, the common case of an inflamed cervix. With such a condition we find every variety of patient, from one who has only a few trifling local symptoms to another who presents the protean symptoms, as they have been called, of neurasthenia and hysteria. The protean symptoms ought not to deprive the patient of her chance of having the local disease cured, and therefore the local treatment proper for the local conditions should be given. But if the patient is to be treated locally till the protean symptoms are gone, she will be treated to an extent which will be injurious to herself, will shake the confidence placed in the profession, and damage the reputation of the practitioner. How are we to judge, in the minor diseases of the pelvic organs, when local treatment should be used, how long it should be used, when it should cease? These questions are far graver than those concerning the particular caustic to be used to an erosion, or the best speculum to expose the cervix. Their correct solution means an accurate diagnosis of the patient's whole condition. How much of her complaint is due to the local change, and how much to the nervous temperament? If her nervous condition is altered, how is it altered, and by what? The last thing that should be assumed is that the local disease is the whole thing.

Our part as obstetricians in the solution of these diffi-

cult problems is to define what symptoms the minor local maladies cause, and what they do not cause.

The symptoms directly due to the local disease will vary little; those due to the kind of patient in whom the disease occurs will be infinitely multiform. It is by the record and comparison of numbers of cases watched for long periods that accurate knowledge of the effects of local changes is to be gained. The immediate effect of treatment is not always to be taken as confirmatory of the pathological view upon which the treatment was based; for it is quite possible that misdirected and unnecessary treatment may do great good, simply by relieving the patient's mind from fear. This is not a reason for carrying out such treatment, but it is a reason for caution in inference.

The main work to be done in minor gynæcology is, in my judgment, not therapeutical but diagnostic. The comparatively slow progress of this branch of science has been due to the too ready acceptation of hypotheses supported by incomplete observations. The reign of hypothesis is in proportion to the difficulty of observation. In every department of physical science the record of progress has been one of the substitution of observation for hypothesis, and of exact for loose observation. This Society can do no more useful work than by so ordering its proceedings as to make all the influence it can exert tend to the making exact and complete the observations which are laid before it and published in its 'Transactions.'

I have trespassed on your patience with somewhat lengthy remarks on very small matters, and with some more general reflections which are not novel, although extremely important. Their importance is the excuse I submit for putting them before you.

Many of those whom I have the honour to follow in this chair have, in their inaugural addresses, striven to rise above the small details of our ordinary work, and view it in a comprehensive way in its relations to wider knowledge and wider duty.

Obstetric medicine is only one corner of the great field of physical science; its methods, its laws of progress, are the same as those of every other branch. I shall, I think, illustrate this better by quoting* an instructive fable, which may not be familiar to every one here, but which is as appropriate to our work as to the larger achievements to which it refers.

The tale of the fabulist is as follows:

"I perceived a vast building hung in space as if by magic. No fault could be found with its foundations, for it had none. Its columns, not half a foot in thickness, soared till thay were lost to view, and bore up vaulting which could only be distinguished by the windows which symmetrically pierced it. A multitude of persons inhabited this edifice, and encouraged by their number, and by the remarkable sense of security which reigned in all faces, I advanced into the crowd, and considered those who composed it. There were old men, some bloated, others wasted, but none healthy or strong, and almost all deformed. One had a diminutive head, another was crippled in the arms: this one showed defect in the trunk; that one in the legs. Most of them had no feet, and went about on crutches. A breath made them tumble, and when fallen, they lay upon the ground until fancy impelled some one to pick them up. In spite of all these defects, their aspect at first sight was pleasing. They had in their faces something—I know not what—interesting and bold. They were almost naked, for their only dress consisted in a little fragment of stuff which did not cover the tenth part of their bodies.

"I pressed through the crowd, and got to the foot of a tribune, to which a great spider's web served as a daïs. Its boldness corresponded to that of the rest of the building. It seemed as if poised on a needle's point, and yet sustaining itself in equilibrium. A hundred times I trembled for the person who occupied it. It was a withered old man, with a long beard, more nearly naked than any of

* From Diderot.

his disciples. He dipped in a cupful of subtle fluid a pipe, which he carried to his mouth, and blew bubbles to a crowd of spectators who surrounded him, and strove to blow them to the clouds.

"Confused with these puerilities, I said to myself, Where am I? What has this blower of bubbles to say? and all these decrepit children occupied in making them fly?—who will explain to me these things? The little scraps of clothing had already struck me, and I noticed that the larger the pieces of raiment, the less those who wore them were interested in the bubbles. This singular observation encouraged me to approach the one who seemed to me the least undressed.

"I saw one whose shoulders were half covered with rags so well brought together that art had hidden the seams. He came and went in the crowd, troubling himself little with what happened. I found his air affable, his lips smiling, his look gentle, his bearing noble. I went straight to him, and asked without ceremony, 'Who are you? Where am I? And who are all these people?'

"'I am Plato,' he replied. 'You are in the region of hypotheses, and these people are the system makers.'

"I asked, 'What are all these rags, that make you look more like beggars than philosophers?'

"He said with a sigh, 'This temple was formerly that of philosophy. The seat of Socrates was in that place.'

"'What,' said I, interrupting, 'did Socrates have a pipe and blow bubbles?'

"'No,' answered Plato. 'Socrates died, and the best days of philosophy passed away. These rags, which the system makers think it an honour to wear, are the fragments of his garment. Who will put them together again,' continued Plato, 'and restore to us the mantle of Socrates?'

"As he uttered this pathetic exclamation I perceived in the distance a child, who walked towards us with slow but assured steps. He had a small head, a little body, feeble arms, and short legs. But as he advanced he grew, and

in his growth he appeared under a hundred different forms. I saw him direct toward the heavens a long telescope; measure with a pendulum the speed of falling bodies; weigh the air with a tube filled with mercury; and, with a prism in his hand, decompose light. By this time he was an enormous Colossus; his head touched the clouds; his feet were lost in the abyss; and his arms extended from pole to pole. He waved in his right hand a torch, whose light spread far into the air, lit the waters to their depth, and penetrated to the bowels of the earth.

"I asked Plato, 'What is this gigantic figure coming towards us?'

"He answered, 'Recognise Experience.'

"He had hardly replied when I saw Experience approach, and the columns of the temple of hypothesis staggered, its vaults crumbled, its floor opened beneath our feet. The Colossus touched the portico, and it fell with a frightful crash."

The application of this fable to our own work I need not point out. The pioneers of gynæcology have disported themselves in the temple of hypothesis, if not more than those who founded other branches of medicine, at least as much, and more recently. It is to be hoped that the influence of this Society will always be powerful in fostering the growth of that mass of experience by which hypothesis must and will be replaced.

It was moved by Dr. Braxton Hicks, seconded by Dr. Gervis, and unanimously carried—"That the thanks of the Society be given to Dr. Herman for the Inaugural Address, and that the Address be published in the 'Transactions.'"

ON LIGATURE OF THE PEDICLE IN OVARIOTOMY.

By Alban Doran, F.R.C.S.,
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(Received May 5th, 1892.)

(*Abstract.*)

A case is described where the patient died of phthisis eight years after ovariotomy had been performed by the author.

Experience has justified the opinion of some of the earlier ovariotomists that the ligature is the best method for securing the pedicle. China twist silk must be used, and it must not be too thick or too thin to make a good deep groove in the pedicle when tied firmly. The simplest loop and knot are the safest. The outer border should always be secured separately whenever the pedicle is broad or short, and in long pedicles where the ovarian vessels are large.

The early union of the tissues bulging over the ligature is well known. The absorption of the ligature has been authenticated by Ballance and Edmunds, who, in a case where the patient died eighteen months after ovariotomy, discovered the knot only of the ligature, the loop having been absorbed. The gradual destruction of the silk by leucocytes getting between the fibres has been plainly demonstrated in the case of arteries. The ovarian pedicle is still better placed to allow that process to go on undisturbed.

Alleged disadvantages of the ligature are mostly due to its unskilful application, rough handling, too thick silk, or complicated knots. The pedicle of an ovary and tube removed for chronic inflammatory changes is less favourable for ligature than is the pedicle of a cystic or solid tumour of the ovary.

An analysis is given of cases quoted in text-books and else-

where to show the supposed disadvantages of the ligature. In some, the pedicle was not that of an ovarian tumour, or the ligature was not entirely sunk in the peritoneal cavity, or was made of very thick silk.

In conclusion, evidence and experience are in favour of the ligature for general use, as the best method for securing the pedicle when ovarian tumours are removed.

THIS communication is based upon a specimen of the pedicle of an ovarian cyst. The patient survived eight years after I removed the tumour, her death being due to phthisis.

H. L—, aged 32, a very robust single woman, manageress of a laundry establishment in the suburbs, first came under my care in July, 1883. A large tumour distended the abdomen. On July 30th I operated in a nursing home, removing a bulky multilocular tumour of the left ovary. The pedicle was very broad and rather short. I secured the ovarian vessels in the outer border with a No. 1 China-twist silk ligature. The centre of the pedicle was transfixed with a needle bearing No. 3 silk and tied in the usual manner; the loop was cut and the two halves crossed on one side, then each half was tied at one extremity of the pedicle. I noted that externally the base of the pedicle almost touched the sigmoid flexure, forming, in fact, one layer of its mesentery. The patient made a rapid recovery, and for seven years enjoyed her usual good health.

In May, 1890, pains in the left loin set in, and after a few months she became cachectic. In January, 1891, a swelling formed in the loin; afterwards rigors occurred. Pus appeared in the urine. On March 7th she was admitted into the Samaritan Hospital. On March 28th, after due deliberation and consultation with my colleagues, I undertook an exploratory operation, opening the abdomen by an incision along the outer border of the left rectus. Most of the tumour was made up of a mass of small intestine firmly adherent to contiguous parts and to

a swelling deep back and high up in the loin, evidently the kidney. I separated the intestinal adhesions. The right kidney did not feel to me perfectly healthy. As the left kidney was in a bad position for removal, and the patient's general health unsatisfactory, I did not think it right to attempt the extirpation of the affected organ. Had the tumour been a cystic kidney, suppurating or otherwise, and not, as in this case, surrounded by structures in a state of chronic inflammation, I should have removed it. As it proved afterwards, the patient was even less fit to bear an operation of extreme severity than I expected.

Before closing the wound, I examined the left umbarl region and iliac fossa and pelvis. The ureter was not dilated. The stump of the ovarian pedicle was healthy, and the structures around it, as well as the tissues along the course of the ureter, were free from any sign of inflammatory thickening. I introduced a drainage-tube. It was removed in forty-three hours, as only a small amount of pale serum came away. A purulent discharge, however, escaped from the wound on the ninth day, and continued for several weeks. Pus came away in the urine; symptoms of phthisis, however, set in, and the patient was sent to St. Bartholomew's Hospital, where she came under the care of my friend Dr. Samuel West.

The patient sank rapidly after her removal to St. Bartholomew's Hospital. The whole left lung was involved, and tubercle bacilli were found in the sputum. On July 14th she died, forty years of age. Mr. C. Hubert Roberts, house physician, kindly informed me of the course of the case, and took care to ensure the preservation of the internal organs. The left kidney, the seat of tubercular disease, was suppurating. The right was not actively diseased.

The evidence of the necropsy tended to prove that the renal disease had nothing to do with the pedicle, any more than it could be said that the state of the pedicle caused phthisis. As, however, the diseased kidney was on the

same side as the ligatured pedicle, I thought it right to give the negative evidence as above detailed. There was no obstruction of the ureter nor thickening of the connective tissue along the course of that duct, and no true hydronephrosis or pyonephrosis. The kidney disease was tubercular. No evidence of tubercle could be found in the uterus, tubes, or ovaries.

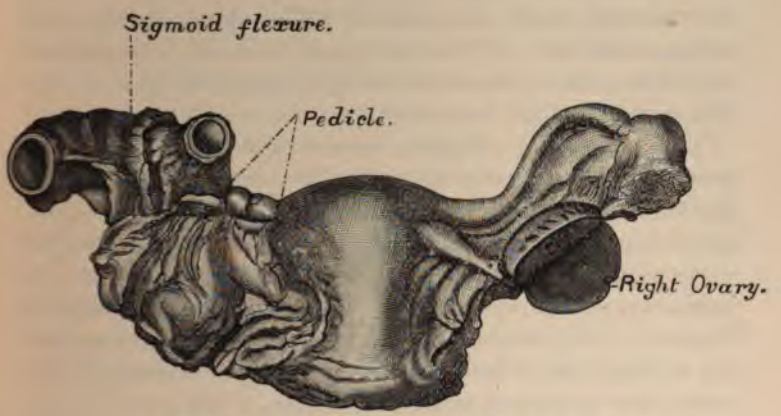
I examined the internal organs in the museum of St. Bartholomew's Hospital, where the pedicle is now preserved. The uterus was two inches long, the cervix short and thick, the os circular. The right ovary measured an inch and a quarter in length, and three-quarters of an inch in vertical measurement. The surface was deeply corrugated. One dropsical follicle protruded from its posterior aspect. On section, its interior appeared dull red and almost devoid of follicles, but speckled at certain points with white spots representing old corpora lutea. The patient had ceased to menstruate after February 13th, 1891. The tube was of senile type, long and thin, with ill-developed fimbriæ.

The pedicle was reduced to a hard tuberosity, close to the left cornu of the uterus. It was barely over a quarter of an inch broad, and no trace of the ligature could be found on snipping into its substance. It consisted of the stump of the left Fallopian tube, and a portion of broad ligament somewhat condensed, yet capable of being frayed out to the extent of half an inch. The hard tissue in the tuberosity was limited to the tube.

The sigmoid flexure lay close to the pedicle, being connected with the uterus by a peritoneal band not half an inch long when stretched. The tuberosity representing the stump of the pedicle lay, in fact, on the free edge of this band. The drawing, by Mr. Leonard Mark, represents the parts as just described.

There can be little doubt that the best way to secure the pedicle of an ovarian tumour is by the ligature. Certain points must always be observed. Silk should be used, China-twist is preferable to floss silk, and the liga-

ture should never be too thick. No. 4 is thick enough for a very stout pedicle ; No. 3 is, as a rule, sufficient. A strong silk of moderate thickness makes a deep groove



Pedicle of ovarian cyst eight years after operation.

in the pedicle if tied firmly, and it is safest to bring its ends round a second time. A thick ligature does not make so good a groove whether its ends be brought round once only or twice. The outer border of the pedicle, including the pampiniform plexus and ovarian artery, should be secured separately with No. 1 or No. 2 silk whenever the pedicle is broad or short, and also in long pedicles when the vessels in question are seen to be large. I know of two cases where, in the practice of able operators, slipping of the pedicle and fatal hæmorrhage followed neglect of this precaution, and other cases of this accident have been reported to me. Sloughing of the ligatured pedicle is extremely rare.

The changes which the pedicle and the ligature undergo are subjects of high interest. All authorities seem agreed as to the effects of ligature on the pedicle. The tissues of the pedicle, consisting nearly always of broad ligament, bulge over the groove made by the ligature and thus come in contact with one another. Hence the importance of

using a silk neither too thick nor too thin to make a good groove. Lymph is thrown out, it organises, and the tissues thus become histologically continuous, the ligature being entirely covered. The vitality of the distal part of the stump is easily maintained, whilst these changes are being established, by the warm and uniform temperature of the interior of the abdomen and the protection of the soft, smooth-walled intestines.

This union of the bulging tissues of the stump has long been recognised. Spiegelberg, Waldeyer, Masslowsky, Bantock, and myself have demonstrated it. I have prepared several specimens, now in the Museum of the Royal College of Surgeons (Pathol. Series, Nos. 4558—60). It is also seen in a specimen in the St. Thomas's Hospital Museum (F.F. 48), and I believe that similar examples are to be found in other collections. I have already discussed the subject at length elsewhere.

The changes in the pedicle, as just described, are, I believe, universally admitted. There can be little doubt that the ligature is nearly always absorbed, but surgeons are not so ready to admit this theory. Spiegelberg and Waldeyer first demonstrated by experiments on the cornua uteri of animals that leucocytes force their way between the fibres and the silk, and thus break up the ligature. Yet many surgeons believe that the ligature simply becomes encapsuled, or eats its way out of the pedicle. Experience shows that the leucocyte theory is quite correct.

Ballance and Edmunds note that " in two post-mortem examinations on cases in which ovariotomy had been performed some considerable time previously, we had the opportunity of looking for the silk ligatures which had been used for the peduncles ; one case was eighteen months after operation, and here only the knot of the ligature could be found ;* the other was three years after opera-

* This is a conclusive proof of absorption, however the absorption may be effected. Had the ligature eaten its way through the pedicle, the loop, if found, would have been entire and unabsorbed.

tion, and in this case no trace of the silk ligature was discoverable."

The authors describe Dent's case, where kangaroo-tendon ligatures were used for the carotid and subclavian arteries; the patient died on the tenth day. The ligatures were examined under the microscope. The tendon was infiltrated with small round granulation-cells, which had penetrated into the interfascicular spaces and tended to split the tendon into longitudinal bands.

The invasion of silk as well as tendon ligatures by leucocytes has been demonstrated not only by Spiegelberg, Waldeyer and Masslowsky, but also, in the case of arteries, by Ballance and Edmunds. The ovarian pedicle is better placed, being more protected than most arteries, to allow of this salutary process of absorption of its ligature. Mr. Langton has used floss silk for arteries, and the cells get between the loose fibres of that material more speedily than they penetrate China-twist, which is employed for ovarian pedicles. Thomson, of Dorpat, in the course of experiments made with different ligatures to determine which were best for suture of the uterus in Cæsarean section, found that carbolised catgut was absorbed in ten days, excepting the loop of the ligature, hence it is dangerous. Chromic cat-gut and silkworm-gut remained quite unchanged at the end of sixty-four days. Silk was partly absorbed in fifty and entirely absorbed in sixty-four days, a safe period for absorption. In the St. Thomas's Hospital specimen, F.F. 48, already noted, "the peduncle had been tied nine months previously with silk which is now partly absorbed." In fact, there can be no doubt that absorption of the silk is the usual and the normal change in ovarian pedicles.

There can be little doubt as to what kind of silk is the best for the ovarian pedicles. China-twist has stood the test of experience. Mr. Treves observes that "this material has a disposition to kink and to curl up even after it has been soaked in water for some time." He is speaking, however, of its employment for sutures. When applied to

the pedicle, it can hardly get so dry as when used for the union of external wounds. Plaited or braided silk, as far as ligature of the pedicle is concerned, seems to possess no special advantages, and the same may be said of floss silk which, though it allows of the free entrance of leucocytes between its fibrils, as Mr. Langton has shown, is more liable than China twist to slip.

In the above remarks on the manner in which the ligature is absorbed, it is taken for granted that the silk has been skilfully applied and, above all that it is clean. A silk containing septic material may readily set up very serious pathological changes.

The real or alleged disadvantages of the ligature must now be discussed. In "Tumours of the Ovary" I showed that as far as the evidence of necropsies can guide us, the cause of death after ovariotomy lies, as a rule, elsewhere than in the pedicle. When the pedicle is the seat of a change to which a patient's death may fairly be attributed, that change is usually a slough of the base of a cyst, or a piece of colloid material left behind, or an abscess, or plugging of large veins due to damage of the parts by the transfixing-needle or ligature. The sloughing of a great piece of tissue left on the distal side, a piece too extensive to get early and free nutrition from the proximal side, will place the patient in extreme peril.

Such conditions are hardly ever seen in these days. The cyst-wall must be got away entire, or if the base remain on the surface of the stump, it must be trimmed away; the same rule applies to colloid or sarcomatous material. The surgeon must avoid transfixing a vein and must not leave too much tissue on the distal side of a ligature. Knowlege of the parts and confidence in the justifiability of ovariotomy permit of gentler manipulation, for it is the ignorant hand that is rough. Hence the pedicle is less tightly grasped, less pinched and pulled about than it used to be. I know of one case where it was probably the rough handling of the surgeon who had not performed ovariotomy before, that caused a free parametritic exuda-

tion in the broad ligament below the pedicle. The pedicle is a tender thing and must not be bruised, nor is there any difficulty in avoiding all bruising during the necessary manipulations.

Above all, the surgeon must avoid thick silk. Dr. Playfair's case, recently exhibited before the Society, where a very thick ligature in three loops had been applied to the pedicle of a diseased ovary and tube, and discharged, is not strictly an example of ligatured ovarian pedicle. The tissues of the pedicle of a tumour of the ovary are usually healthy, but the pedicle of old inflamed appendages is always made up of diseased, if not of actively inflamed or even suppurating tissues. Yet in the case of inflammatory disease of the ovary and tube, the ligature still seems the best form of treatment. No other method of securing the pedicle can overcome the disadvantages of leaving diseased tissue behind. Here it is more than ever important not to use thick silk. In Dr. Playfair's case, the operator admitted that no thinner silk was at hand when he operated; so he had no choice but to use the stout material figured in Dr. Playfair's paper.

In Dr. Milne Chapman's case, a silk ligature was discharged from the lower angle of an ovariotomy-wound nine weeks after operation. The patient was rather a sickly woman, aged 64. More silk than usual had been required to secure the pedicle, "hence perhaps the passing of the ligature." No antiseptic had been used either during or after the operation, and no rise of temperature had occurred. No notice of the thickness of the ligature is given in the original report. In reply to a letter which I addressed to him, Dr. Chapman kindly gave me the desired information. "I used," he wrote, "too much silk and silk of too great thickness, No. 5 braided, and used two ligatures. I had been troubled before by breaking ligatures, and also in the previous case to the one referred to, by the edge of the pedicle slipping out of one loop of the Staffordshire knot which necessitated my removing the ligature and applying another." Most assuredly the safe ligation of the pedicle

is the first thing to be considered. The best way to avoid snapping of silk ligatures (it being taken for granted that the material is in good order before use) is to avoid fancy knots, in which the thread winds repeatedly in and out, offering many points where one portion frays another as the ligature is drawn tight. Lastly, in Dr. Chapman's case the discharge of the ligature might, after all, have been the result, not the cause, of some complication set up by other agencies.

Drs. J. H. Thompson and Pandolfi's case where the ligature ulcerated into the bladder* must be set aside, as it was not an instance of complete intra-peritoneal ligature. The ends of the threads were left outside the wound and cut short at the end of eleven weeks.

The case of discharged ligatures in M. Quenu's case reported by M. Terrier must also be rejected. The operation was not ovariotomy but removal of the uterus for fibroid disease, together with the ovaries which were the seat of proliferous tumours. A large number of ligatures was discharged through the vagina, after the formation of abscess. Hence this case cannot be quoted by objectors to ligature of ovarian pedicles. Dr. W. Goodell has inadvertently included it under his notes of cases of discharged ovarian pedicle ligatures.

Dr. W. Goodell notes that in two cases of his own the ligature was discharged "without doing harm," but he gives no particulars. Hegar's remarkable case of discharge of a ligatured stump through the rectum has already been referred to in my own writings.

Dr. Keith prefers the cautery to the ligature, but in the cases in this distinguished authority's experience, quoted by Goodell, catgut-ligatures were used, not silk, and in one, Dr. Keith states, "some thick catgut-ligatures had been used

* As in Dr. Haig Ferguson's case ('Edinburgh Med. Journ.,' March, 1893, p. 863), "Phosphatic calculi passed *per urethram*, in which the nucleus of the largest was formed by 'a silk ligature.'" The ovaries and tubes had been removed a year before, for inflammatory mischief. No note is made of the thickness of the silk, or the knot. See observations on Dr. Playfair's case.

to a very thick omentum. Several of the knots came away through the wound, and after weeks of horrible suffering from cystitis, a thick knot of catgut, with the loop but little absorbed, was passed by the urethra." Hence the cases do not precisely coincide with the subject of this communication, in which it is assumed that silk is used for the ligature. Thomson of Dorpat's experiment, already quoted, shows its superiority to catgut.

Dr. William Taylor draws a gloomy picture of the prospects of a patient who bears a ligatured pedicle. He gives carefully prepared details of a case where he believes that malignant disease was set up by the irritation of the ligature. In certain points it bears a resemblance to my own case, described at the beginning of this memoir.

In 1883 a surgeon, with whom Dr. Taylor was personally acquainted, removed a left ovarian tumour. The cautery and no ligature, Dr. Taylor informs me, was applied to the pedicle. The right ovary appeared healthy, but it was removed lest it should become the seat of future disease. The surgeon "applied a double silk ligature, removed the ovary, and allowed the ligatured stump to fall back into the abdomen." Dr. Taylor further informs me that no note has been kept of the size of the silk used in the ligature. Three years later the patient suffered from an offensive watery discharge from the uterus, which lasted for two years. Five years after the operation the right foot and leg became very swollen, indeed, almost gangrenous. Dr. Taylor believed that the open remnant of Fallopian tube which had previously allowed its discharges to escape into the uterus had become occluded. This complication has set up a pelvic abscess which retarded the circulation. The leg recovered. In September, 1889, a large tumour was found reaching from the liver to the right iliac space. Suppression of urine occurred and proved fatal.

At the necropsy "the pedicle on the left side presented no signs of prolonged irritation, there being, in fact, a

marked absence of thickening either in or around it. The right pedicle had, on the other hand, been the seat of much and prolonged irritation, the evidence of this being found in the presence of dense fibrous adhesions in its neighbourhood, especially posteriorly where the pedicle was incorporated with the parts in front of the sacrum and adjoining pelvis. On the uterine side of what looked like the seat of ligature there was a four-chambered cyst, about the size of a small walnut, which contained purulent-looking material. The bladder and parts in front of the uterus appeared normal, but behind the uterus and in the pelvis round the rectum there was much fibroid thickening; the thickening extending to and involving the walls of the rectum. This condition, extending upwards along the connective tissues in front of the spine, produced a like thickening and induration in them, and in it both ureters were embedded, the left being so surrounded by this new tissue as to lead to its complete blocking, while the right was not so completely blocked." . . . . There was advanced hydronephrosis in the left kidney. The right kidney was large and swollen. The new tissue involved the head of the pancreas and the suprarenal capsules. The liver contained whitish malignant nodules.

Under the microscope the new tissue was found to be chiefly fibrous, but it included an adenomatous structure, suggesting and in parts closely resembling proliferous cysto-adenoma of the ovary. In the liver the structure of the nodules was more that of an ordinary carcinoma.

Though suspending judgment Dr. W. Taylor concludes: "Meanwhile the opinion may be expressed that the irritation round the ligature appeared to be the starting point of an irritation (*sic*) which acquired, if it did not originally possess, malignant characters, and led to the condition briefly sketched in this report."

Dr. Taylor further informs me that, about two years since, the sister of this patient had one ovary removed in

the Colonies. Returning to England she bore a healthy child. After convalescence was fairly established, she again turned ill and died in a few weeks. The cause of death was obscure, and there was no necropsy. Dr. Taylor does not know whether the ligature or the cautery was applied. The published case requires some comment. In my own, as in Dr. Taylor's, there was kidney disease on the side where lay the pedicle. But there was no obstruction of the ureter and no thickening of the tissues along the ureter, or even in the immediate neighbourhood of the pedicle. The renal disease was tuberculous and corresponded to the state of the lungs, and there was no tubercle in the pelvis. Again, in my case, there was no new growth.

In Dr. Taylor's case, on the other hand, both ureters were obstructed and both kidneys diseased. The renal disease, which proved fatal, was caused, at least in part, by the blocking of the ureters. The chief point to be decided is the nature of the new tissue which blocked the ureters. Firstly, there was a four-chambered suppurating cyst on the uterine side of the seat of ligature. Secondly, the new tissue had spread far and wide and closely resembled "proliferous cysto-adenoma of the ovary," or even, in certain parts, "ordinary carcinoma."

It is hard to see how the ligature could develop "a four-chambered cyst about the size of a small walnut." This cyst and the malignant or semi-malignant growth which developed so widely in the abdomen, suggest simple recurrence in the stump of the right ovary of the disease which attacked the left ovary; recurrence of the new growth after a type nearer to malignancy than that of the first tumour. Induration produced by a ligature is simply the well-known hardness of parametritis. But malignant degeneration of parametritic deposit is almost if not quite unknown. In short, the theory that the evil termination of this case was due to the ligature, must remain very doubtful. If the ligature did set up malignant disease, the complication is, at the worst, extremely

rare, and can hardly influence the operator in his choice of a means of securing the pedicle.

Drs. Thomas and Skene Keith remain the great advocates of the cautery. "The cautery," Dr. Skene Keith observes in an article published in April, 1892, "has still advantages over the ligature, the chief one being that if there be bleeding it will occur at once, and not, as is the case with the ligature, some time after the abdomen has been closed. When the pedicle is specially broad, the cautery does admirably. On the other hand, when thin and easily compressible, the ligature is as safe, and perhaps somewhat more easily applied." Baker Brown's clamp remains, in Dr. S. Keith's opinion, the best instrument for cauterisation. Dr. Keith admits that he has personally had greater experience of the ligature than of the cautery. He adds that he will probably use the cautery more in future, "employing the ligature only for slender pedicles, and also, of course, for cases requiring enucleation, in these latter, it not being necessary to treat, *en masse*, large portions of tissue."

In his advocacy of the thinnest possible ligature, most operators will agree with Dr. S. Keith. "The ligature of silk ought to be just so thick as to withstand the strain the operator can put upon it; there is not any advantage in having it thicker." He rightly recommends simplicity in the form of knot, and the manner in which it is tied; I referred to this subject in relation to Dr. Chapman's case. Dr. Keith's observation that the bleeding will occur at once, in the case of the cautery, often applies to the ligature, that is to say, if the pedicle be carefully examined after the tumour has been cut away, the operator can usually detect if the silk is getting loose. In a specially broad pedicle, the ligature is not always difficult of application. The separate securing of the ovarian vessels is the great safeguard. It must be observed that Dr. Keith bases his preference for the cautery on the question of hæmorrhage, rather than on the risk of late complications around the stump. The experience of the

Samaritan Hospital shows that the danger of hæmorrhage after ligature is very slight, and that, with certain precautions, it may be practically avoided altogether.

Hence we must conclude that the disadvantages of the ligature are but trifling, for whilst pathology shows that it produces rapid changes in the pedicle by which that structure is reduced to a mere knob of tissue and the silk itself absorbed, the alleged bad results can mostly be referred to certain avoidable errors in this method of treatment. I have here shown that many cases which have been quoted as evidence against the ligature are either not examples of complete intra-peritoneal ligature of ovarian pedicles, or are too meagrely reported to be of value, or are of doubtful interpretation. The ligature is the favourite appliance for the ovarian pedicle, and experience has justified that favour.

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Dr. WILLIAM DUNCAN agreed with the author that silk was by far the best and most reliable substance for ligature of the pedicle. At the same time he would like to point out that one of his colleagues at the Middlesex Hospital invariably used kangaroo-tendon with excellent results. He (Dr. Duncan) thought that an inexperienced operator as a rule used silk much

too thick, and also employed an unnecessary amount of force in tying. His own plan was to transfix the pedicle with a double ligature of medium Chinese twist which had been boiled in a carbolic solution, and having divided the ends to cross them before tying. He had lately discontinued the practice of tying the pedicle twice round, and found the results equally good, whilst there was, he thought, less likelihood of the ligature setting up subsequent irritation. It was very important that no traction whatever be put upon the pedicle whilst it was being tied. He considered that by using sterilised silk and crossing the ligatures there was little fear of an untoward result, even if a vein happen to be transfixed.

Dr. Leith Napier remarked that Mr. Doran seemed to have omitted to refer to two additional safeguards in dealing with large fleshy vascular pedicles, viz. covering over the raised surfaces of the pedicle, which consisted partly of the open mucous surface of the Fallopian tube, by the peritoneal edges; and, if judged necessary before so doing, securing any prominent vessel in the pedicle by separate fine silk ligature. It was true that the outer edges bulged up in many, perhaps in most, cases. Still there could be no doubt that the folding in of the raised surfaces of the pedicle and then stitching the peritoneal edges together, was much better than trusting to the bulging being in every case sufficient. By thus covering the raw end they avoided three risks—hæmorrhage from partial slipping or loosening of the main ligature of the pedicle; absorption through the raised mucous surface originating local inflammations; and, what was perhaps most practically important, post-operation adhesions between the pedicle and neighbouring parts, such as intestine and omentum. Several operators had practised and advocated this method recently. Separate ligation of one or two large vessels in the pedicle was also advantageous. Sometimes this might be done by direct ligature, using the finest silk; in other cases one might transfix a small part of the pedicle on the distal side of the ligature, and thus ligate any prominent vessel above the main ligature of the pedicle. It was only in exceptional cases, however, that separate tying of vessels in the pedicle was required.

Mr. Walter Edmunds thanked the President for inviting him to join in the discussion and expressed regret that Mr. Ballance had not been able to be present. Mr. Doran's paper was a valuable contribution to an important subject. He classed complicated knots among the causes of disaster, and commended a silk ligature with the simplest loop and knot; it must, however, be remembered that these conditions were fulfilled in the earlier cases of hæmorrhage, and that whatever part complicated knots might have played later, in the first instance the hæmorrhage was the cause of the knots and not the reverse. The reason that the

ligature did not sufficiently compress the bleeding artery might be (1) that the loop was loose, (2) that the knot had become undone, (3) that the pedicle had slipped out of the loop. The loop might be loose because the elasticity of the pedicle had distended the loop after the first hitch only had been tied, when the ends of the ligature were relaxed (as they must be) to complete the knot. The difficulty could be met by using two ligatures side by side, and tying and drawing tight the first hitch on each simultaneously, by which means the resistance to distension would be much increased, or one ligature could be held tight while the other was tied. The loop might be loose in another way; if the pedicle were tied in three parts, and the ligatures crossed and the two outer ligatures tied first, the middle would be held at two places, and could not be satisfactorily tightened. The knot might come undone by the ends being cut too short, or by the ligature breaking as the knot was completed. The boiling of silk in an antiseptic solution materially weakened it, and made it advisable before using it to test it, not merely by pulling on it, but by tying a knot in it and then pulling; this would make it much more likely to break, and if it did so it would be at the knot; if, therefore, the ligature should break in tying the pedicle it would be at the knot, which, if left, would come undone. Lastly, the pedicle might slip out of the loop; this might be due to it having been cut too short, or to the loop being too loose (the first hitch having slipped), or to the ends of the knot having been pulled upon; to prevent this it was advisable to cut off the ends as soon as the knot was tied. In the excision of veins for varicocele also the cord had been known to slip out of the loop. In this operation it had been recommended to bring the two cut ends together; if this were done it should be by separate sutures, and not by tying together the ends of the two ligatures.

Dr. Heywood Smith said one of the reasons that ligatures slipped was that many operators did not know how to tie a knot properly. After the first tie had been made, it was very important not to put the least strain on the ends while the second tie was being made, as the slightest pull made the hitch likely to slip. Referring to the fact recorded by Mr. Doran, that his patient died of phthisis, he (Dr. Smith) wished to ask whether any observations had been made as to whether patients who had had the uterine appendages removed were more liable to phthisis and cancer? He had had a case a few years ago where the patient died within two years after such an operation, and in whom there were no apparent symptoms of phthisis previously.

Dr. Boxall, though agreeing in the main with the principles laid down by Mr. Doran in his instructive paper as to the size of the ligature, drew attention to an additional element which it was necessary to take into consideration in the selection of a

ligature in certain cases—to wit, the friability of the tissues of the pedicle to which the ligature must sometimes of necessity be applied. For instance, in the case reported by Dr. Playfair, quoted in the paper in which Dr. Boxall himself was the operator, the whole of the tissues available for ligature was so friable that a thin ligature would have cut through inevitably, on the same principle that a sharp knife will cut more readily than a blunt one. And though, had the opportunity offered, he would not have used silk of quite such a thickness as that actually employed, he wished it to be distinctly understood that he could have by no means used a thin ligature. As Mr. Doran very rightly pointed out, this case could not be considered as an example of ligature of the pedicle of an ovarian cyst. But even in ovariotomy a similar difficulty was sometimes encountered. As an example of this, Dr. Boxall mentioned a case of multilocular cyst in which twisting of the pedicle had occurred with hæmorrhage into several, and rupture of one of the cysts. The tissues right up to the corner of the uterus proved to be not merely œdematous but friable. The first, a medium-sized ligature cut through; a second, rather large, likewise; and a third, a thick one, applied on the inner side of the round ligament, cut into the uterine tissue to the side of the fundus, and that though the silk was very gradually tightened and without the exercise of force more than sufficient to deligate the bleeding vessels. In consequence, it became necessary to form a pedicle of the uterus itself. This was undoubtedly an extreme case, but might be taken as an example of the difficulty which sometimes occurred in ovariotomy from deficient resistance of the tissues of the pedicle, and showed that sometimes an additional element existed which should not be neglected in the selection of a suitable ligature.

Dr. Herbert Spencer agreed that silk was the best material for ligature of the pedicle, but it was a disadvantage that in some cases the silk remained a long time. Hentsch had shown that chromic gut was undissolved after eighteen months. He (Dr. Spencer), at necropsies, had found the silk ligature embedded in adhesions one, two, and five years after ovariotomy. He had also, at an operation, found it apparently completely dissolved after a few months. It required careful search with a sharp knife before it could be said to have disappeared. He thought floss silk greatly superior to China twist, being cleaner and less liable to be damaged by manufacture, and it could be tied tighter; in thick pedicles the first cross of the knot should be nipped with forceps while the second was being tied. He preferred moderately thick floss silk, it did not contain so much silk as the same thickness of China twist; it should be strong enough to bear all one's force when it was tied with a simple knot. He had never had a ligature come away afterwards.

Dr. Lewers referred to shortness of the pedicle, especially of the ovarian ligament, as an occasional reason why a ligature could not be securely tied. In a case of the kind he had left a pair of Wells's large pressure forceps on the pedicle for forty-eight hours with a satisfactory result.

Mr. Alban Doran agreed with Dr. William Duncan, in preferring silk for ligatures, rather than kangaroo-tendon. Experience had shown that silk was satisfactory and trustworthy. A silk of moderate thickness made a good deep groove directly it was pulled tight, then the ends might be brought round once more. Boiling silk rendered it very liable to snap. Mr. Doran found that sterilised silk was best preserved in carbolic acid mixed with oil of juniper, and ready mounted on reels. Transfixion of a vein was a distinct danger; he had known fatal phlebitis with abscess in the pedicle after that accident. He observed that sewing up the raw surface was a practice some time in vogue, and he agreed with Dr. Leith Napier that large gaping vessels should be secured, but after ligature of the pedicle it was usually sufficient to fix a pressure-forceps to the mouth of the vessel and leave it there till the closure of the abdominal wound. The application of the forceps, one at each end of the pedicle, and the sinking of the pedicle, the ends of the ligature being cut short at once after tying of the knot was the right practice. The forceps allowed the operator to draw the pedicle up and inspect it before tying the sutures in the abdominal wound. Mr. Edmunds was perfectly right in condemning the opposite practice of leaving the ends of the ligature uncut and pulling on them so as to raise and inspect the pedicle at the end of the operation. Mr. Doran found a double-reef satisfactory, and agreed with Mr. Edmunds as to the dangers of a second transfixion, where the two outer ligatures pulled on the third between them. Mr. Edmunds and Dr. Heywood Smith both dwelt on the dangers of ignorance of the principles of knots. Mr. Doran recommended the study of the article "Knots," in the 'Encyclopædia Britannica.' One class of knots was made to resist traction from outside its loop, as in the case of a rope cable used in the mooring of an old 100-gun ship. But in securing the pedicle resistance to pressure from within was needed, hence the knot had to be tied on a different principle. Mr. Doran did not like the Staffordshire knot, because the loop had often to slip over a broken-down tumour, so that the silk might get contaminated with colloid matter, malignant cells, pus, dermoid tissue, or other impurity. Besides, he had known cases where it had slipped, and it was too complicated, being very difficult to tie firmly, when the pedicle was too short to be safely brought well up to the level of the wound. Again, when one end of the silk was simply drawn through the loop, after transfixion and the two ends tied ("Bantock's

knot"), care must be taken not to pull that end so as to fray and cut the loop. In regard to leucocytes getting between the fibres of the ligature, he wished Mr. Edmunds to understand that he had used the pathological terms originally employed by Spiegelberg and Waldeyer. Mr. Doran was not aware that phthisis ever followed as a result of ovariotomy, but he had known a fragment of the wall of a perfectly simple ovarian cyst, left behind in the pedicle, to undergo malignant degeneration. He had not found, like Dr. Boxall, that moderately thin ligatures cut through the pedicle of inflamed appendages. The clamping of the pedicle with large pressure-forceps rendered the tissues thinner yet tougher and able to resist firm ligature. Mr. Doran was glad to hear of Dr. Herbert Spencer's experience of floss-silk, and hoped that his drawings of the microscopic appearance of old pedicles would be published. Chromic gut took too long to disappear. Mr. Doran had had the misfortune to see two cases of slipping of the ligature with fatal results, and he believed the fault lay in the tying and in neglecting to secure the ovarian vessels separately. In his own practice he had never lost a patient from that accident, though he had known the ligature to slip before the end of the operation, so as to require re-adjustment. Fortunately he had secured the ovarian vessels, else a serious amount of blood might have been lost. This precaution should never be set aside except when the pedicle was very long and narrow, and the ovarian vessels plugged or atrophied.

APRIL 5TH, 1893.

G. ERNEST HERMAN, M.B., President, in the Chair.

Present—47 Fellows and 4 visitors.

Books were presented by Messrs. John Wright and Co. and the Royal Medical and Chirurgical Society.

James Morrison, L.R.C.P.Lond.; and E. H. Edwards Stack, M.B.Cantab., were admitted Fellows of the Society.

John Jordan Harvey, L.R.C.P. and S.Edin. (Nottingham), was declared admitted.

The following gentlemen were proposed for election:—William Alfred Berridge, M.R.C.S. (Redhill); Harry Warnell Denton Cardew, M.R.C.S.; Alexander William Woodman Dowding, M.D.Durh. (New Wanstead); Roger Neville Goodman, M.A., M.B.Cantab. (Kingston-on-Thames); Herbert Edward Powell, M.R.C.S.; Thomas Roberts, L.S.A.; John Weller, L.R.C.P.Ed. (Colchester); Robert Wise, M.D.Edin.; and John Fitzhenry Woodroffe, M.D.Dubl.

BLIGHTED EMBRYO.

By L. REMFRY, M.D.

THE embryo was supposed to be one week old. The contour and size corresponded to this, but the internal structure was indefinite. Its history was as follows:—The

patient, after five weeks amenorrhœa, was taken with flooding, and passed a shaggy ovum, $\frac{7}{12}$ inch in diameter and weighing 11½ grains. On dissection an incision was made over an area uncovered with villi, and the contents were found to be mostly watery fluid, but also a good deal of coagulated material, perhaps yelk and blood mixed. On searching carefully through this a white spot, about the size of a pin's head, was seen covered by a thin membrane. Microscopically this presented the appearance described. The size of the whole ovum, being relatively so large for the embryo, pointed to the fact that the embryo had died at an early period, subsequently undergoing degeneration, while the other parts of the ovum continued to grow.

The PRESIDENT said that in museums there were many specimens of apoplectic ova in which the embryo was very small indeed, in proportion to the membranous sac, a fact which suggested that the chorion might grow after the embryo had died, and there was some reason for believing that in extra-uterine pregnancy the placenta sometimes continued to grow after the death of the child.

CASE OF EXTRA-UTERINE GESTATION, IN WHICH THE FŒTAL MOVEMENTS CEASED AT THE END OF THE EIGHTH MONTH, AND ABDOMINAL SECTION WAS PERFORMED FOUR WEEKS LATER.

By Charles J. Cullingworth, M.D., F.R.C.P.,
obstetric physician to st. thomas's hospital.

(Received March 18th, 1892.)

E. G—, æt. 25, married, residing at Chelmsford, was admitted into St. Thomas's Hospital, March 27th, 1890.

She was a domestic servant from the age of twelve up to the time of her marriage at the age of twenty-three. She had had one child, fourteen months before her admission. The labour was easy and natural. She had had no miscarriages.

Her present illness dated from August 14th, 1889, on which day she witnessed a street accident and received a severe fright. She was immediately seized with a sharp and sudden pain in the lower part of the abdomen on the left side. She managed, with difficulty, to walk to the house of her mother, a distance of a quarter of a mile, where she fainted, and was obliged to remain for a little time. Later in the day she walked to her own home, a walk occupying about half an hour. The acute pain lasted altogether two or three hours, and then passed off. She had been menstruating regularly up to the time of this occurrence, and was expecting her next period in a day or two. The day after the accident she felt so weak and ill that she sent for a doctor, and she continued under medical treatment from that time to the present. The

expected period did not appear, but during the month of September she had three rather severe hæmorrhages. There had been some irregular hæmorrhages since, but no proper menstruation. After the first attack of pain there was no recurrence for a week; since then, however, she had not been free from pain for many days together. During the last month the pain had been less severe, and on admission she was entirely free from pain. The abdomen was first noticed to be swollen about the middle of October, when a small tumour was felt in the hypogastrium, slightly to the left side. This gradually increased in size up to a month before admission, since which time it had been diminishing. Fœtal movements were first observed in December, and continued to be felt up to the 3rd of March, when they finally ceased. The breasts also began to enlarge in December, and remained full until early in March when they began to diminish in size and to become soft and flaccid. There had only once been any difficulty in micturition. This was a month before admission, the catheter being required on that occasion. The uterine souffle had been heard by the medical attendant, but not the sounds of the fœtal heart.

The patient, on admission, was very thin and pale. Her appetite was poor, her tongue red and denuded of epithelium, pulse 108, temperature 99·4° F. The urine contained a trace of albumen. There was no œdema of the extremities. The chest-sounds were normal.

The whole abdomen was very much distended by a large elastic tumour, fairly central and symmetrical. A rounded prominence, 3 inches in diameter, was visible beneath the abdominal wall, to the left of the middle line and 2½ inches below the umbilicus. This swelling underwent alternate contraction and relaxation. No similar contraction occurred in the rest of the tumour. Above this swelling a groove ran across the tumour. The percussion note was dull over the whole tumour; the flanks were resonant. From the left side of the prominence above described a cord-like body could be traced out-

wards for some distance. At the upper and left part of the tumour there was a rounded portion, harder and more solid than the rest, giving, when handled, a sensation as of the grating of loose bones over each other. No fœtal movements or heart-sounds could be detected, and no uterine souffle.

The tumour extended 4½ inches above the umbilicus and to within 3½ inches of the ensiform cartilage. The distance from the umbilicus to the pubes was 6¾ inches, and to the anterior superior spinous process of each ilium 7 inches.

There was no discolouration of the vaginal mucous membrane. The os uteri was situated in front on a level with the summit of the symphysis pubis. The cervix admitted the tip of the examining finger, and was of soft consistence. Posteriorly the vaginal roof was depressed by a large smooth swelling, partly fluid and partly solid, continuous with the main tumour in the abdomen. The uterine canal was ascertained by the sound to be 4 inches in length, the point of the instrument being felt in the contracting prominence already mentioned, which was thus proved to be the body of the uterus. A sound introduced into the bladder showed that organ to be displaced upwards and to the right, its upper limit being 3 inches above the pubic bone.

The diagnosis was extra-uterine fœtation. It was inferred, from the history and present condition, that the death of the fœtus had occurred about twenty-four days before the patient's admission, in the latter part of the eighth month of gestation.

Abdominal section having been proposed and agreed to by the patient and her friends, the operation was performed on April 1st, 1890 (five days after admission).

A median incision having been made, it was found that the sac containing the fœtus consisted of the right broad ligament, enormously distended at the expense of the adjoining peritoneum, that, namely, covering the posterior aspect of the uterus, that forming the posterior layer of

the left broad ligament, and that reflected on to the back and side of the pelvis. The stretched Fallopian tube ran diagonally upwards and outwards, from the uterus, on the wall of the sac for a short distance, and then ceased to be traceable as a distinct tube. The uterus, corresponding in site to the contractile prominence seen before operation, lay to the left, in front of and attached to the sac. Its anterior wall was in close contact with the abdominal parietes. The peritoneum on its posterior surface had been stripped up to contribute to the sac-wall, so that no retro-uterine space existed. The sac was now punctured by means of a small-sized trocar, a little dirty blood-stained fluid being withdrawn. Pledgets of wool saturated with solution of corrosive sublimate (1 in 1000) having been packed beneath the abdominal wall all round the exposed surface of the sac, the opening made by the trocar was enlarged. The first part of the fœtus that came into view was a foot. The head was situated at the upper part of the sac; the scalp was swollen and destitute of hair. The foot was seized and traction made, but the rest of the lower extremity was tightly wedged in the lower part of the sac, deeply in the pelvis, and the attempt to deliver by the foot was abandoned. The head was then seized and extracted, and the remainder of the body followed easily. The funis was quickly clamped near its fœtal end, and divided, and the child handed over to an assistant. The hand was now introduced into the sac in search of the placenta. This was found to be attached to the front wall of the deeper portion of the sac in the lower part of the pelvis, completely out of view. Separation was commenced very carefully. As no bleeding occurred, the whole placenta was peeled off and removed, along with a portion of the membranes. The cavity was now thoroughly explored. The deeper portion of the sac was found to dip deeply behind the vagina; its abdominal portion was found comparatively free from adhesions. Such adhesions as existed were for the most part intestinal, of recent origin, and non-vascular. These having been separated,

a portion of the upper part of the sac was cut away, and the mouth of the remaining portion of the sac secured to the edges of the abdominal wound. The opening in the sac-wall extended downwards to the fundus uteri, and at the place where uterus and sac joined there existed a slight laceration of the uterine tissue, whence there proceeded some oozing. The edges of this rent were accordingly brought together by two fine silk sutures. Fifteen silkworm gut sutures were then passed through the whole thickness of the lower half of the abdominal incision, and the edge of the opening in the sac, nine on the right, six on the left side. The uppermost suture included a double fold of the sac-wall, so as to shut it off more completely from the peritoneal cavity. The abdominal cavity was cleansed by means of sponges, and the upper part of the abdominal wound was closed in the ordinary way by means of nine silk-worm gut sutures. The interior of the sac having been emptied of clots and loose shreds of membrane and swabbed with sublimated wool sponges, an india-rubber drainage-tube was passed to the bottom of the sac and secured at its mouth by a safety-pin. The dressings consisted of wood-wool pads, absorbent wool, and a many-tailed flannel bandage. No drainage-tube was inserted into the peritoneal cavity.

The operation lasted one hour and three-quarters.

Description of fœtus and placenta.—The fœtus was of the male sex, and was fully developed. Its length was 19 in., its weight 5 lbs. 3½ oz. The cuticle was separating. The head was twelve inches in circumference, large, flabby, and swollen. The placenta was of battledore shape; its diameter was 9 inches, its weight 1 lb. 8½ oz.; its main mass on section presented the appearance of a sponge from which blood-stained fluid had been squeezed out; in its larger vessels was some old clot.

Vomiting took place at intervals up to 10 a.m. on the 3rd inst. Slight metrostaxis commenced on the day following the operation, and continued for twelve days. The temperature only once reached 100° Fahr., viz. on

the evening of the day of operation; on the second day it varied from 99° to 99·8°, and after that it seldom exceeded the normal. Flatus passed naturally on the third day; the bladder was relieved voluntarily on the fourth day. On the fifth day the bowels acted after an enema, and nine of the stitches connecting the opening of the sac with the abdominal wall were removed. The discharge from the sac became on that day purulent and offensive. On the eighth day most of the remaining sutures were removed, the rest being taken out on the ninth and eleventh days. On the twelfth day the patient was very comfortable and able to sit up in bed. A vaginal examination was made on the fifteenth day. There was no fulness in Douglas's pouch; the right lateral fornix, the posterior fornix, and the cervix uteri were normal; there was some soft bulging of the anterior part of the vaginal roof on the left side; the vaginal mucous membrane was soft and velvety. The patient left her bed on the twenty-second day, and walked a little with assistance. There was so little discharge on the twenty-sixth day that the tube was finally removed; the sinus measured three inches in length.

On the 3rd May the patient left the hospital well and entirely free from discharge. The uterus was of normal size, fairly moveable, and somewhat high up in the pelvis. The body of the uterus lay a little to the right. There was no depression of the vaginal roof, and the remains of the cyst could not be detected on bimanual examination.

The point of chief interest in this case has reference to the placenta. Usually the separation of the placenta, when attempted within the first two or three months after the death of the child at or near full term, is attended with hæmorrhage of so alarming a character that even the boldest and most experienced operators advise that the attempt should not be made. In this case, notwithstanding that the placenta was of large size and that the operation was undertaken at the comparatively early period of four weeks after the cessation of fœtal movements, the circulation in the placenta had ceased and the process of separa-

tion was carried out easily and without any hæmorrhage. It is therefore evident that, although it may be, and doubtless is, quite true that, generally speaking, it is a dangerous and unjustifiable proceeding to separate and remove the placenta so soon after the death of the child, there are exceptional cases in which the placenta may be removed with impunity.

A CASE OF EXTRA-UTERINE GESTATION IN WHICH FŒTAL DEATH PROBABLY OCCURRED AT THE END OF THE SIXTH MONTH, AND ABDOMINAL SECTION WAS PERFORMED TWO AND A HALF MONTHS LATER.

By John Phillips, M.A., M.D.(Cantab.), F.R.C.P.,

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(Received March 24th, 1892.)

(*Abstract.*)

The patient, æt. 28, and married eight years, has two children, the last five years ago. Both labours were normal in every way. The last period ceased on January 30th, 1891, after which she had morning sickness, and considered herself pregnant. During the last week in April, when passing urine (after allowing her bladder to become much distended), she was seized with a severe paroxysm of pain in the lower abdomen, but did not lose consciousness. Some slight vaginal hæmorrhagic discharge occurred. After this she began to have spasmodic abdominal pains, chiefly on the right side.

May 26th.—She went to Soho Hospital. Serous discharge was expressed from the breasts, and the uterus was found fixed in the pelvis, and an abdominal tumour made out.

Early in August shreds began to be passed with the hæmorrhagic discharge; the abdomen continued to increase in size.

On September 15th the breasts became very painful and swollen, but shrank the next day. They returned gradually to their ordinary state of flaccidity.

The patient was admitted into King's College Hospital October 12th, and three days later the abdomen was opened, and a putrid fœtus of about 6—6½ months' growth removed from a cyst in the left broad ligament. The patient recovered.

The patient, O. J—, æt. 25 years; has been married eight years, and has had two children, the last five years ago, but no miscarriages. Menstruation began at twelve years of age, the catamenia are regular, lasting three or four days, not copious and neither preceded nor accompanied by pain; there is no leucorrhœa. The patient had chorea when young, otherwise had always enjoyed good health, except for "an inflammation of the inside," three years ago, which laid her up for fourteen days; no particulars can be obtained of this illness, and the patient herself is ignorant whether the inflammation was of the womb or bowels.

She was confined of her first child seven years ago, labour normal in every way with a good "getting up;" she nursed the child until it was eight months old, when it died from convulsions supposed to have been caused by vaccination; the patient became pregnant again at the end of the following year, and was confined of her second child sixteen months after the first, and therefore, five years ago. The labour was rapid and straightforward; puerperium normal; lactation for nine months. The catamenia appeared again a month afterwards (*i. e.* ten months after confinement), and lasted from two to four days, the flow being slightly more profuse than before the confinement. She remained perfectly regular and well until the last week in January, 1891, after which time she again considered herself pregnant.

History of present attack.—The last period ceased on January 30th, 1891, after which she had morning sickness pain in the back, and other symptoms usual with her during pregnancy; she remained fairly well and without any abnormal symptoms until April, when she had some scalding pain during the act of micturition, which caused

her to retain her urine as long as possible, the bladder in consequence becoming more distended. This continued for a few days, when one morning during the last week in April, after allowing her bladder to become fuller than usual, she began to strain considerably, and was seized with a sudden severe paroxysm of pain in the lower part of the abdomen, passing through to the back and rectum. She had some slight vaginal hæmorrhage, felt faint and cold, but did not lose consciousness; after a little time retching and vomiting began, she was seen by a doctor, who said it was a miscarriage, and recommended rest. The urine remained quite clear, and free from blood throughout. A few weeks after this she began to suffer from spasmodic pains in the right side of the abdomen, which caused her to draw up the corresponding leg while they lasted. The pains would continue for about half an hour, occur at irregular intervals, and be followed by a watery pinkish vaginal discharge. About this time she noticed a small lump to the right of the umbilicus, about the size of a hen's egg, which became more evident on lying down. On May 26th, or five weeks after the attack just mentioned, she went to the Soho Hospital for Women, and was detained in the hospital a week, at the end of that time, the patient went out at her own request, no treatment having been adopted. Extract from report of Soho Hospital:

Per vaginam.—"Uterus quite fixed, central, rather low; no particular bulging in *cul-de-sac*. Abdominal tumour universally of one consistence, no fluctuating or cyst-like portions to be felt."

Since she left the hospital, the discharge has continued almost incessantly, necessitating the constant wearing of diapers; it has not increased on exertion, and is not worse at the menstrual epochs. Since early in August the patient has noticed shreds in the vaginal discharge. The pain has continued off and on, and the abdomen has gradually increased in size. The breasts have also become swollen and harder, they were first noticed to contain

lacteal secretion, when the patient visited the Soho Hospital; some sero-lactescent fluid was then squeezed from the breasts.

September 8th, 1891.—I saw her for the first time; she was then complaining of great pain in the right iliac region, and was in bed. The breasts were tense; the veins coursing over them enlarged and sero-lactescent fluid could be expressed from both nipples; the brown discoloration between navel and symphysis pubis was well-marked.

Per abdomen.—A tense, almost immobile, oval swelling reaching up to umbilicus and situated in the median line, and in shape not unlike a six month's pregnant uterus. No contractions of a rhythmical nature can be made out over it, neither can fœtal heart sounds be heard or fœtal movements be felt. Well-marked dulness on percussion over the whole tumour. Resonance in the flanks. The surface over the right iliac fossa is extremely tender on pressure.

The following measurements were made:

From umbilicus to ant.-superior iliac spines (right and left)	7½ in.
„ „ to symphysis pubis	9 in. (+).
„ „ to xiphoid cartilage	8 in.

Circumferential measurements made at level of—

The umbilicus	29 in.
The iliac crests	31·5 in.

Per vaginam.—Os uteri, softened, patent, low down in pelvis. Uterus pressed downwards and forwards, and quite fixed. In the posterior *cul-de-sac* can be felt a hard immobile, extremely tender swelling about the size of an orange; it is apparently extra-uterine. There is well-marked violet discolouration of vaginal mucous membrane, especially near urethral orifice.

15th.—Breasts painful; a discharge of a pinkish tinge, containing some shreds of membrane, passed *per vaginam*.

17th.—Breasts less tense; less pain on right side, discharge continues.

20th.—Discharge ceased; breasts flabby but milk can be expressed.

Measurements—

From umbilicus to ant.-superior iliac spine . .	7½ in.
„ „ to symphysis pubis . . .	8 in.
„ „ to xiphoid cartilage . . .	7 in. (+).

Circumferential measurements at the level of—

The umbilicus	29 in.
The iliac crests	31 in.

Physical signs are much as before, with exception that at the fundus of the tumour and to right and left, a resonant note can be made out, which may be due to bowel coming between tumour and parietes.

A pill was given as follows to produce a daily action of the bowels:

℞ Ext. Cascar. Sagrad. gr. j.
Ext. Hyoscyami gr. ½.
Ext. Belladonnæ gr. ¼.
At bedtime.

27th.—Dark red vaginal discharge; breasts flaccid.

30th.—No discharge, no pain in side; scarcely any milk in the breasts. Has sweated towards the early morning during the past week; the patient is not losing flesh; is cheerful and takes her food well.

Per abdomen.—The highest point of swelling is now a finger's breadth below umbilicus; the tumour is firm, resistant, and immobile. No fluctuation can be detected; no fœtal heart-sounds heard; no fœtal movements made out; no souffle.

Per vaginam.—The cervix and body of the uterus are pushed downwards and forwards against the symphysis pubis; the posterior half of the left side of the pelvis is filled with a hard tender mass, evidently in continuity with the abdominal swelling. Bi-manually an indistinct sense of fluctuation can be made out.

October 5th.—The temperature has been almost normal during the past four days, and she has been up and walking about; she went, however, contrary to all advice, for a drive on the outside of an omnibus to-day; she was obliged to return home in considerable pain over the whole abdomen.

6th.—The dulness is still further diminished from above over the tumour as if the bowel was encroaching on the space between the tumour and the abdominal parietes.

10th.—Much dragging pain in left side with hæmorrhagic vaginal discharge; the tongue is dry down the centre and she has much thirst; her pulse is quick but regular; the sweats every morning continue.

12th.—The patient was admitted into King's College Hospital.

Per vaginam.—Os uteri soft, patulous, and pointing backwards towards the sacrum; the uterus is fixed. The sound passes 2¾ inches in a forward direction; the passage of sound gives the patient great pain in her left side; there is slight violet discoloration of the vaginal mucous membrane. There is a slight offensive uterine discharge.

13th.—Patient was anæsthetised with A. C. E. mixture and seen in consultation by Dr. W. S. Playfair.

Per abdomen.—The swelling rises up to within two fingers' breadth of umbilicus; at its upper extremity it is elastic, and although no distinct fluctuation can be made out, it gives the sensation of being cystic. It was thought possibly the attachment of the placenta might be situated there. The swelling is quite fixed.

Per vaginam.—Occupying the posterior *cul-de-sac* and posterior half of left side of pelvis is a hard indefinite mass, and running transversely across it can be felt a hard band, which is slightly mobile; this was diagnosed at the time as a fœtal limb; high up on the left side an irregular mass of indefinite shape was felt, continuous with the abdominal tumour. The uterus is absolutely fixed. A sound passed into the bladder shows that organ to be drawn upwards.

15th.—Operation 2 p.m. A. C. E. mixture used for production of anæsthesia. The abdomen had been first thoroughly purified with soap and water and scrubbing with carbolic acid lotion (1 in 20). An incision of 5 to 5½ inches was made in the median line from just below the umbilicus downwards towards the symphysis pubis; on the subperitoneal fat being exposed, fluctuation was felt immediately beneath it; on carefully dissecting downwards an elongated, thin-walled cyst was encountered, the size of a tangerine orange, which bulged into the opening, simulating intestines, in tearing through this the peritoneal cavity was opened; in the upper part of the aperture coils of intestine appeared, while below a small portion of pinkish sac-wall was seen. The small intestines were firmly adherent to the upper and posterior surfaces of the sac; the adhesions were broken down, some being old and firm, others more recent. The sac was now well in view presenting a fleshy aspect not unlike the pregnant uterus. The bladder was found by the sound to be adherent in front. The peritoneum of the parietes was roughly stitched to the other tissues of the abdominal wall with catgut; the intestines having been carefully covered by flat sponges and the edges of the incision well-packed round with specially prepared elongated pads of sal-alembroth gauze to prevent the escape of any fluid from the sac into the peritoneal cavity, an incision of 3 inches was made into the tumour; a rush of fœtid gas followed; the two edges of the sac were firmly caught in two strong clamp forceps; a very putrid, dark, purulent-looking fluid escaped from the sac, by turning the patient on to her right side, this was allowed to flow on to the macintosh and thence into a pan below the table.

The hand was passed into the sac and the fœtus extracted by the vertex, together with the putrid remains of the placenta and membranes. The fœtus was lying in a kneeling position, the face and knees to the right and downwards, the head being immediately behind the disintegrated placenta, whilst the legs were lying transversely

in the most dependent part of the sac deep down on the left side. No difficulty was experienced in removing the placenta. The fœtus was macerated, scarcely anything but the bones and ligaments remaining, and most offensive. Slight dark coloured hæmorrhage took place into the sac, but required no treatment.

The cavity of the sac was then thoroughly irrigated with 1 in 1000 perchloride of mercury solution until the returned fluid was clear, then the sac wall was thoroughly cleansed by means of perchloride cotton wool, the sac being then stuffed with five iodoform pledgets. The peritoneal cavity was douched out with warm boracic acid solution by means of Tait's trocar. The edges of the upper 2½ inches of the abdominal incision were brought together over the intestines by means of four carbolised silk sutures, including skin, muscular tissue, and peritoneum; the wall of the sac was stitched to the edges of the lower part of the incision first by interrupted sutures of fine silk and then by continuous catgut sutures. The sac wall was extremely rotten, and great difficulty was experienced with the portion near the intestines.

The iodoform pledgets were withdrawn, and a large Keith's drainage-tube inserted into the sac cavity, and the syringe was found to draw up only a little grumous blood-stained fluid. The operation lasted one hour and twenty minutes; the condition of the patient was satisfactory at its termination.

She quickly recovered consciousness; a sweat appeared on face and right thigh and leg, the left remaining perfectly warm and dry; no pain. Discharge from vagina of a dark red colour.

Description of fœtus.—Total length 13½ inches. It consists of bones, cartilage, and ligaments, all the other tissues having been absorbed. The frontal bone is in two parts; ossification is apparent in the inferior turbinated bones; the ribs are ossified to their cartilages and ossification has commenced in the sternum.

October 16th, 1891.—Has had no nausea or vomiting. Sipping hot water ʒj every half-hour, and mouth washed out with lemon water to quench great thirst; the glass tube was emptied every two hours by syringe. Much detritus and granular material washed out by 1 in 2000 solution. The general condition of patient good; aspect normal; no abdominal tenderness or distension; dark red vaginal discharge continues. Tongue clearing, quite moist.

17th.—No sickness or pain; no sweats; the amount of fluid secreted by sac walls is very large and is drawn off every two hours; discharge full of *débris*, quite sweet. No pain or abdominal distension. Urine high-coloured and loaded with lithates; she is drinking barley water and imperial drink. Still slight vaginal discharge of pinkish colour.

18th.—No abdominal distension or tenderness; small gangrenous piece of cyst-wall in lower angle of wound, the other portion seems quite healthy; the cyst cavity is capable of containing ʒiss—ʒij of fluid; the fluid withdrawn through glass tube by syringe is filled with greenish-brown detritus which sinks to the bottom of the vessel on standing, leaving the supernatant fluid clear. Urine passed naturally—normal, no albumen.

Per vaginam.—No vaginal discharge; uterus almost in mid-pelvis and high up. In the posterior *cul-de-sac* is a hardish semi-mobile swelling, not tender, probably collapsed sac-wall.

20th.—Glass tube removed, and the cavity of the cyst found to be 4¼ inches perpendicularly down towards the lumbar vertebræ; an india-rubber tube was inserted, and patient turned on to side. Slight vaginal discharge; no violet discoloration.

Per vaginam.—The swelling in posterior *cul-de-sac* as before; os uteri patent, soft, and drawn upwards and to the left slightly; in the left broad ligament is a distinct hardening to be felt; the right side is normal.

November 10th.—The tube left out altogether, a small

granulating wound remaining; she left the hospital three days ago, and the following note was made:—

Per vaginam.—The uterus is nearly in mid-pelvis and much more mobile; there is a spot of thickening in the left broad ligament, but the swelling in the posterior *cul-de-sac* is scarcely distinguishable.

28th.—She had much pain ten days ago, for forty-eight hours in the left side and down the left thigh, which was relieved by the appearance of the menstrual flow; she says that during the catamenia her left leg began to swell and continued to do so until to-day. General condition excellent. The temperature and pulse have been normal. The left leg is swollen, brawny, and glistening.

January 5th, 1892.—Catamenia reappeared December 22nd and were normal in every way; she is now performing her household duties. The left leg above the knee measures 16¼ inches in circumference, whilst the right leg at a corresponding spot measures 14¾ inches. The abdomen is tumid but painless. Cicatrix soft and non-adherent to subjacent structures.

Per vaginam.—The uterus is semi-mobile but drawn slightly to the left side. There is a distinct thickening in the left broad ligament.

Remarks.—Many points of interest arose during the course of this case, and I have, therefore, given details fully.

As regards the age of the fœtus, there is strong evidence to show that the patient was pregnant at the end of May, when seen at the Soho Hospital, and until the end of July her abdomen increased gradually in size; counting from January 30th, she would then have been about six months pregnant, although be it observed the patient never noticed fœtal movements. Early in August, all through that month and in September she passed shreds in the vaginal discharge. The breasts became painful on September 15th, or (still calculating from January 30th), at seven and a half months, and began to become flabby the next day and continued so.

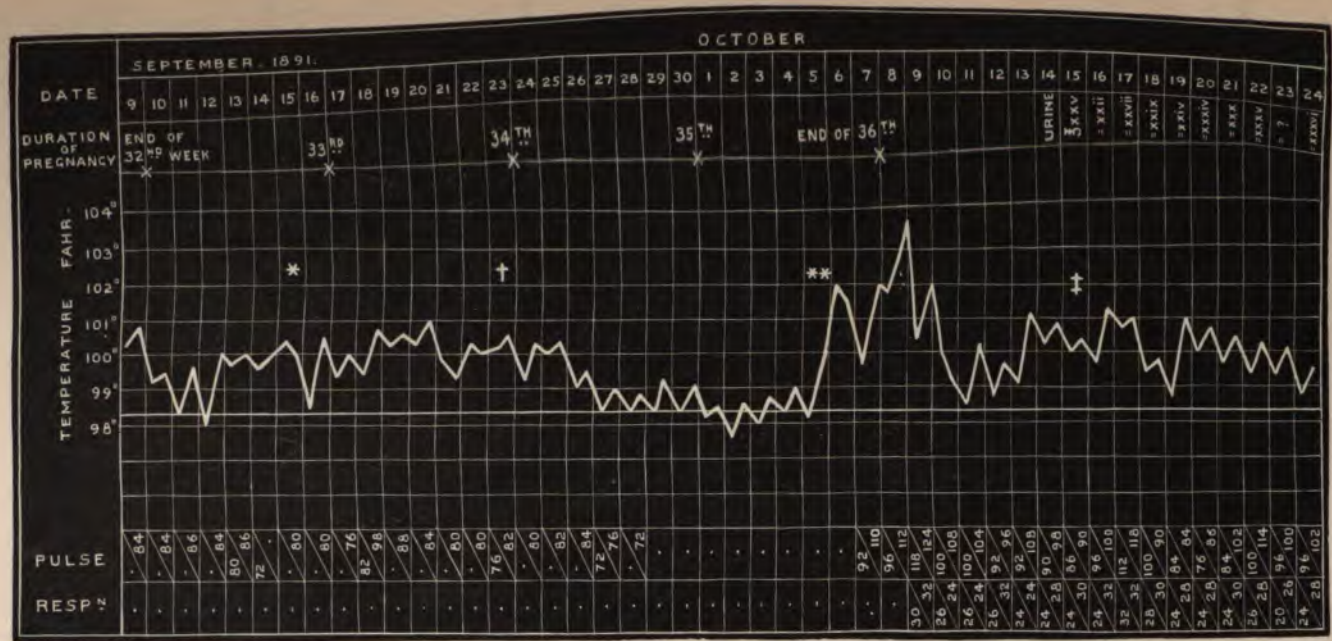
The appearance of the fœtus indicates a six to six and a half months fœtation, and I think that the evidence goes to prove that its death took place either at the end of July or early in August, *i. e.* at the end of the sixth month. Why the breasts should have become swollen at the seven and a half months I cannot say; no spurious labour preceded the phenomenon. The abdominal swelling tended to diminish apparently in size from the day I first saw the patient on September 8th.

Noteworthy points among the events leading up to this condition are, the comparatively long period of non-fertility—five years—between the birth of the second child and the commencement of the third pregnancy; then the attack of "inflammation of the inside" probably peritonitic which occurred between them, and three years before the extra-uterine pregnancy commenced; this had, however, no effect on her menstruation, which was regular and painless.

The morning sweats began two months after the supposed fœtal death, viz. about September 30th; possibly sepsis began then, and yet with the putrid condition which must have been present then, her temperature remained normal for four days, and only ran up again when she attempted the omnibus ride (*vide* Temp. Chart).

Violet discoloration of the vaginal mucous membrane was well marked on September 8th, but gradually faded and could not be detected on October 20th. Probable course of the pregnancy was as follows:—A true tubal gestation on the left side ruptured when three months advanced between the layers of the broad ligament; the sac was produced chiefly by the increase and distension of the posterior lamina; septic infection was produced by direct contact with the rectum after death of the fœtus.

An interesting feature was the cyst of the great omentum over the site of the putrid placenta. Before operation the semi-fluctuant sensation it imparted on palpation, suggested the presence of the placenta. I followed Dr. Cullingworth's



* Breasts painful and distended.

† Morning sweats began.

** Took ride in omnibus, 11 a.m.

‡ Abdominal section, 2 p.m.

recommendation during the operation, and used alembroth gauze pads for packing round the wound instead of stitching; it will be found to save much time, and is more convenient.

TWO CASES OF ECTOPIC GESTATION.

By E. Sinclair Stevenson, F.R.C.S.E., Rondebosch, Cape Colony.

(Communicated by Dr. Playfair.)

(Received July 29th, 1892.)

Mrs. X—, æt. 40, married seventeen years, never pregnant before.

She states that she has always been in good health until lately, when she felt pains across the abdomen and vomits frequently. She thinks that according to calculation, she has passed her full time. Her pulse is 120, small, temperature normal. She has a sallow complexion and an anxious look.

External examination.—Abdomen very distended, full up to the ribs, on percussion a fluid wave is felt all over. Right across the umbilicus, stretching from right to left, the body of a fœtus is felt, the head to the left, the feet to the right. The fœtal heart can be heard about the umbilicus, and the body floats freely in fluid; above the symphysis pubis a hard round body is felt, the size of two fists, and nowhere can the placental souffle be heard.

Per vaginam, the os points forward, the cervix is soft, there is no bulging in any of the *culs-de-sac*, and no discharge.

The history of the case is clear; no pain up to the eighth month of gestation.

I saw the patient again a week later, the fœtal heart had stopped, the patient looked worse. Her temperature was 101°, pulse small, and her expression was bad; a sound passed *in utero* showed that organ to be empty.

It was decided to operate without delay, but before

necessaries were got ready she was too ill to be operated upon, and died twelve hours afterwards.

Sectio cadaveris.—On opening the peritoneum, a cyst presented, filling the whole of the abdominal cavity, cutting into its anterior wall, which was very thin and greenish in colour, a quantity of most offensive fluid escaped. A large fœtus presented right across the sac in the position already described. Following the cord, the placenta was found attached to the uterine fundus, fitting it like a cap.

I could not determine whether there were any tubal rupture, the broad ligaments were normal in appearance, and the placenta was unusually small.

I think with many, that if an impregnated ovum escape into the peritoneal cavity, it will in all probability be destroyed by the abdominal fluids; but there are exceptions to this rule. In the case of tubal abortions, when the ovum has already begun to form its attachments, and when the ovum and its placenta are expelled, and escape through the ostium into the abdominal cavity, it may get in some fold or corner where, alike all foreign bodies, it will cause inflammatory adhesions which will shelter and protect it from destructive influences. From the absence of all symptoms of rupture, it is fair to assume that the escape of the ovum from the tube must have happened at a very early date. Again, the position of the placenta showed that it derived its nutrition from the uterine walls. Why could not the ovum derive its nutrition from some other similar sources as well?

Mrs. J—, æt. 30, 5-para.—Eleven years married, was sent to me by her medical attendant with the following note:—"Since her last confinement, eleven months ago, the patient has been ailing constantly. She has been treated for sub-involution and ovarian congestion, and attacks of pain for which I cannot find any reason." Three months after confinement, Mrs. J. was attended for acute abdominal pains followed by severe prostration. The patient did not suspect that she was pregnant, and

any diagnosis of that kind was difficult, for the patient in all her former pregnancies had menstruated regularly, and nursed her last baby as well. After the severe attack she had flooded for some days, and an enlargement supposed to be an inflamed left ovary has been discovered. In fact a clear history of an ectopic gestation six weeks old rupturing in the broad ligament. This swelling had since rapidly enlarged, and she had come to me to be operated on for an ovarian cyst.

It was six months after the rupture that I first saw her, and she stated that she had no idea that she was pregnant, that she was constantly in pain, and that a week previous to her visit, she had been seized with agonizing pains, and that she had fallen down and fainted.

External examination.—In left side there is a tumour extending from pubis to 2 inches above and to the left of the umbilicus. The growth is hard and nodular, almost fixed, and has no feeling of fluctuation. From this, right across to the right flank, there is no sign of growth, but just above the right ovarian region there is another tumour the size of a large fist. Between this and the larger growth the percussion note is clear, except where the enlarged uterus is felt, around the umbilicus the fœtal heart is heard, and in the region of the tumour in the right side the placental souffle is distinct.

She developed symptoms of uræmic poisoning, and on testing her urine it was found to contain a considerable amount of albumen.

Operation.—Having diagnosed abdominal gestation a median incision was made, on getting through the peritoneum the sac presented, viz. the left broad ligament. The walls, very thin and white, were incised, and a full-size living child delivered with some difficulty. Looking for the placenta it was found right across to the other side, where the placental souffle had been heard, in a hernia-like protrusion of the broad ligament. Owing to the size of the fœtus the sac had to be freely opened, and, during extraction, was torn low down. Free hæmorrhage followed.

By drawing up the sac as much out of the wound as possible, with reflected light a vessel could be seen pumping at the base of the left ligament, to enable me to secure it the sac had to be stretched out which tore over the placental insertion. A wave of blood poured over the patient and table, and for a moment the hæmorrhage was terrific. The sac was immediately secured below the placenta with a piece of tubing, the walls incised, and the placenta removed. All the adhesions were freed and the whole of the cyst ligatured low down with rubber tubing, clamped and fixed outside the wound with two knitting needles, the stump trimmed and dressed. A drainage-tube was inserted in the lower angle, and the cavity freely flushed with hot water. The patient recovered without a single bad symptom. Three days afterwards the albumen disappeared entirely, reappeared on the eighth day in lesser quantity, and five weeks afterwards there was no trace of it.

Remarks.—The diagnosis of secondary abdominal pregnancy was wrong. In this case the position of the placenta, in the opposite side of the pelvis, was quite unusual, and the symptoms of secondary rupture supervening shortly before my seeing the patient were suggestive of abdominal gestation.

I hoped at the time that the position of the bladder would have given me some valuable information. Stretched by an eight months' pregnancy the broad ligament would probably lift the bladder high up in the pelvis. On opening the cavity I found the bladder in its normal position, the utero-vesical fold was not in the least stretched, whilst the posterior pouch, viz. the recto-uterine fold, was stretched considerably, and the posterior part of the uterus was seen denuded of its peritoneal investment.

Excision of the sac in advanced ectopic pregnancies is a very difficult and a serious proceeding. But whenever it can be done it is wise to do it. The difficulty is in freeing the sac from its adhesions, if this can be done it is far safer than running all the risks which attend on a case where the sac and placenta are left behind.

Mr. SIDNEY TURNER said that so many cases of ectopic gestation created quite an *embarras de richesse* for discussion, but made it difficult to follow the details of differences and similarities in them. There were, however, three points of especial interest which occurred to him as most worthy of their consideration. Firstly, the physiological one of the rhythmical contraction of the uterus which was visibly observed by Dr. Cullingworth in his case, but was not to be seen in that of Dr. Phillips. This rhythmical contraction of the uterus in cases of ectopic gestation, where the uterus was empty—except for the decidua—and would, therefore, appear to lack the stimulus to contraction, was a new fact to him. Secondly, the question of waiting till the death of the fœtus had taken place before the operation for its removal was undertaken. This was a most important point to be considered, especially in reference to that vexed question—the third point of interest in these cases—whether the placenta should be removed at the time of operation, or be left to break down and come away subsequently by suppuration, thus entailing a long illness with all the dangers of septicæmia. Hæmorrhage of an alarming character no doubt often occurred when its removal was undertaken, but this sometimes subsided after the separation was completely accomplished. In a case which Mr. Sidney Turner had in his practice, the woman had gone to the full period of gestation, the fœtus had died at the ninth month, and the temperature, which was carefully watched, having risen to 101° F. at the end of three weeks, the operation was performed. The placenta was made out in Douglas's pouch, but when the section was made through the abdominal wall it was found adherent immediately under the line of incision; the placenta occupied Douglas's pouch, it was adherent to the posterior wall of the uterus and the abdominal walls, spread out in a battledore shape, and measured ten inches in length. The fœtus was removed and the placenta rapidly detached without much difficulty; copious hæmorrhage occurred at the time, but free irrigation with very hot water, stopped all further bleeding, and although a Keith's drainage-tube was left in for two days, no discharge took place, and the patient made an uninterrupted recovery. A point of interest in this case was the use of oil of peppermint as the antiseptic, but whether this had any effect in the control of the hæmorrhage, it was difficult to say. Mr. Sidney Turner subsequently remarked on the expedient, which seemed obvious—but which he had not seen mentioned—namely, the compression of the aorta, which could be easily accomplished, when the abdomen was open, either by the hand or by a clamp, if constructed for this purpose. The hæmorrhage in these and in similar operations was of so rapid a nature that its source could often not be easily discovered.

This compression of the aorta would control it for a time, and enable them to find the source and tie the bleeding points. Another point of interest in Dr. Cullingworth's case was the very short time which had elapsed since the last pregnancy, as in these cases there was usually a long interval of sterility between the ectopic and the previously normal pregnancy.

Dr. Peter Horrocks related details of a case which had been under the care of his colleague in Guy's Hospital for the last four months of an extra-uterine gestation, in which the child was living all the time; the patient had pain and wasting, but operation was deferred on the grounds that statistics proved that the mother's chances were increased by allowing the child to die before operation. At the full term, internal hæmorrhage and collapse from accidental separation of a portion of placenta took place; immediate operation was resorted to with the result that the patient died on the table and the child only gave a few gasps. He had determined that in a similar case he would not allow statistics to prevent operation. Such a case occurred some twelve months ago, and he had operated in the presence of Dr. Hammersley, the medical attendant, and Dr. Galabin. The child was removed and the placenta which lined the back of the uterus and the bottom of the pelvis was detached easily and without much hæmorrhage until about one half was peeled away, when the loss of blood became sudden and alarming. Vain efforts at catching the bleeding points were made and finally the pelvis was stuffed tightly with sponges, and the left broad ligament was tied bit by bit, and cut as far as practicable downwards into the pelvis. What remained of adhesion of placenta was now rapidly broken down, considerable hæmorrhage taking place. The bleeding, however, soon stopped when all was cleared out and the patient was carried back to bed after an operation which lasted three hours. She had made a good recovery, and was still living. At the present time there were two cases of extra-uterine fœtation in Guy's Hospital. In both, the child had been dead for months. His colleague operated on one, removing the child but not the placenta, and he had operated on the other, removing both child and placenta. In both cases the walls of the sac were stitched to the abdominal wound. Both patients were convalescing. He considered that the question of operation as soon as the diagnosis was made should be seriously considered in every case. If the patient were in good condition and had no bad symptoms, it might be justifiable to wait, but it must be remembered that these patients were always on the brink of serious danger. He mentioned the interesting physiological fact that the uterus contracted and relaxed in extra-uterine as well as in intra-uterine gestation and said that from observations made by others and by himself, it was most probable that not only the uterine but all other mus-

cular fibres contracted and relaxed constantly in a state of health. In the non-pregnant condition, it might be impossible to feel any hardening or softening, but that it occurred there could be little doubt. Moreover, in extra-uterine fœtation, the uterus increased in size *pari passu* with the gestation, and its walls were so thick at any given stage, when the child was alive, as to admit of being stretched into a size comparable to the same degree attained by an intra-uterine gestation of the same age.

In answer to Dr. Cullingworth, Dr. Horrocks said that he had seen the uterus at the full term of an extra-uterine gestation, and that it was as large as the uterus just after labour. He also said that in one of the cases now in Guy's, the woman's uterus only measured three inches before the operation. She had gone four months beyond full time; so that it would appear that involution of the uterus took place in these cases.

Dr. WILLIAM DUNCAN agreed with those who argued that when extra-uterine pregnancies were diagnosed in the late months of gestation, it was not advisable to wait until the child had been dead for some time before operating, as the danger of hæmorrhage is not so very formidable if the placenta be not interfered with; besides which the occurrence of sepsis could be in great measure avoided by using proper precautions. He thought that if extra-uterine gestation were diagnosed in the early months, then operative measures should be undertaken without any delay whatever as the danger to the mother was so great; if, however, the child had nearly approached viability he would feel inclined to endeavour to save it by keeping the mother absolutely at rest and watching her carefully until there was a probability of saving both her and the child by operation. He thought it a dangerous practice to try and remove the placenta at the time of operation unless one felt pretty sure the circulation had ceased in it, and he asked Dr. Cullingworth what were the reasons which induced him to try and remove the placenta at once. He (Dr. Duncan) related a case in which profuse hæmorrhage occurred the day after operation for extra-uterine gestation, and whilst the cyst cavity was being gently washed out; the probability was that a piece of the placenta was detached by the nozzle of the syringe. Fortunately the injection of a solution of ferric chloride stopped the bleeding and the patient ultimately recovered. It was unfortunately the fact that it was impossible in any given case to foretell how soon the placental circulation would cease after the death of the fœtus, as some cases had been recorded in which the placental vessels were completely thrombosed in a few weeks, and others where the circulation was still going on several months after fœtal death.

The PRESIDENT said there were three points raised in the papers, and remarks on them on which he wished to comment.

The first was whether it was desirable to postpone operation until after the death of the child or not? He thought the answer to this question must be different at different periods of pregnancy. In the first six months of pregnancy he thought the sooner the operation was done the better; the patient was saved much suffering and risk; and the danger from hæmorrhage was not so very great. At or near term on the other hand, he though the evidence of statistics, as to the tremendous danger of operation during the life of the child, was so clear and strong that it could not be set aside. He did not think they were yet able to decide exactly at what date the line should be drawn between immediate operation and postponement till after fœtal death. As a general rule, patients did not suffer much in health during the last three months of the child's life. The case described by Dr. Horrocks he (the President) thought was an exceptional one, calling for a departure from ordinary rules. The second point was as to the wisdom of trying to remove the placenta. He did not think that any general rule could be laid down, applicable to all cases. There were at least three different conditions of placenta that were met with. The placenta might be completely thrombosed. Such a placenta could be safely and easily peeled off. It might be attached to the broad ligament, then it could be pulled up, its seat of attachment tied, and the placenta cut away, like a broad ligament cyst. The circulation might be still active in it, and its attachment might be widely spread over important and vascular parts; in that case any attempt at its removal would be disastrous. The third point was as to the necessity for stitching the sac to the abdominal walls. If this were done so thoroughly as to shut off the peritoneum, it much prolonged the operation. Sometimes, as in one of the cases read that evening, the tissues were friable and broke away, and sometimes pulling up and stitching the cyst-wall involved much tension on the structures concerned. He thought it was quite unnecessary. In a case on which he had operated about a month ago, in which he found the sac had begun to suppurate, he removed a fœtus of about five and a half months intra-uterine age. The placenta was attached to the front of the sac. He did not attempt to remove it, or ascertain the extent of its attachments, but filled the sac with iodoform gauze. He did not stitch the sac to the abdominal wall, but left the gauze protruding at the lower end of the incision. He left the gauze undisturbed for ten days. It was then removed, and during the next fortnight the sac was daily washed out, and each washing brought away placental *débris*. The patient did not have any bad symptoms. He had no doubt that the lymph exuded round the strip of gauze shut off the general peritoneal cavity quite as well as it would have been shut off had he stitched the cyst wall to the margins of the wound.

Dr. Heywood Smith asked the President whether, in the description he had just given of plugging the cavity of the sac with gauze, he considered that the edges were thereby brought forward towards the abdominal wound, or how otherwise was the general abdominal cavity safeguarded.

Dr. Donald believed that, as a rule, it was advisable to postpone operation until a considerable period had elapsed from the death of the fœtus, but one of the dangers of such delay was illustrated in a case which had recently come under his care. The patient was admitted to hospital a fortnight after all fœtal movements had ceased. She was then rather pale and exhausted, and there was an offensive discharge from the uterus. A few days after a large hæmatocele developed—possibly as the result of manipulation during the examination—in the folds of the right broad ligament and in close relation to the placenta. The effused blood rapidly became septic, general septic peritonitis set in, and the patient's condition grew more alarming from day to day. Operation had ultimately to be undertaken as a matter of necessity, at a time when the patient was in almost a hopeless condition, and death followed in a few hours.

Dr. Boxall suggested that, in the case recorded by Dr. Phillips, the apparent discrepancy with regard to the date of the death of the fœtus, as judged on the one hand by the stage of development, and on the other by the period of pregnancy at which the breasts became tense and subsequently flaccid, might be explained on the assumption that the cause which eventually led to the death of the fœtus had for some time previously been in active operation so as to retard development. On this assumption, when its death occurred in the thirty-second week of gestation, the fœtus might have attained a development corresponding to that of a six or six and a half months' growth only.

Dr. Cullingworth, in reply, said he was entirely in accord with Dr. Sinclair Stevenson in regard to the desirability of removing the whole of the sac in operations for extra-uterine gestation. It was not, however, always practicable. But even, if, owing to dense intestinal adhesions or other causes, the whole of the sac could not be removed, it was still good practice to remove as much of it as was possible. He believed, with the President, that the ligature of the sac to the edges of the abdominal incision was unnecessary. The custom was a relic of the traditional dread of the peritoneum, and might be abandoned with advantage. He thanked Mr. Sidney Turner for having emphasised two additional points of interest in his (Dr. Cullingworth's) case, viz. (1) the ease with which the rhythmical contractions of the empty uterus could be both seen and felt through the abdominal wall, even three or four weeks after the death of the child, and (2) the absence of the usual long interval since the previous pregnancy. He understood

Dr. Horrocks to say that the enlargement of the uterine walls and cavity continued to increase up to the moment of the death or removal of the fœtus. He would like to know what authority Dr. Horrocks had for that statement. He had hitherto been under the impression that the enlargement only went on up to the third or fourth month and then ceased. With regard to the time for operating, he agreed with the President that in the earlier months abdominal section was indicated as soon as the diagnosis had been established, but that in the later months the child being alive or having but recently died, the rule was less absolute, each case having to be decided according to its own special circumstances. Dr. Champneys had pointed out, in the course of a previous discussion at that Society, that the fœtus in these cases was so often malformed that it might be left out of consideration in deciding on the course to be adopted, the mother's welfare alone being taken into account. In reply to Dr. W. Duncan he said that he commenced the separation of the placenta tentatively, because he regarded such a course preferable wherever it was at all practicable and not because he had any reason to believe that in that particular case the placental circulation had ceased. Martin, of Berlin, both advocated and practised removal of the placenta at the time of operation, and a series of cases from Martin's clinique, illustrating that practice, had been published in this country some six or seven years ago by Dr. Annacker, of Manchester.

MAY 3RD, 1893.

G. ERNEST HERMAN, M.B., President, in the Chair.

Present—38 Fellows and 3 visitors.

Books were presented by Dr. Cullingworth, Dr. W. S. Playfair, Dr. Pinard, Messrs. Adlard and Son, and the Clinical Society of London.

Richard Jocelyn Swan, M.R.C.S., was admitted a Fellow of the Society.

Ferdinand Campion Batchelor, M.D.Durh. (Dunedin, New Zealand); and William Betenson Betenson, L.R.C.P. Lond. (Saxlingham), were declared admitted.

The following gentlemen were elected Fellows of the Society:—William Alfred Berridge, M.R.C.S. (Redhill); Henry Warnell Denton Cardew, M.R.C.S.; Alexander William Woodman Dowding, M.D.Durh. (New Wanstead, N.E.); Roger Neville Goodman, M.A., M.B.Cantab. (Kingston-on-Thames); Herbert Edward Powell, M.R.C.S. (Upper Clapton, N.E.); Thomas Roberts, L.S.A.; Robert Wise, M.D.Edin.; and John FitzHenry Woodroffe, M.D.Dubl.

FOREIGN BODY (HAIRPIN) IN BLADDER OF YOUNG GIRL.

By T. C. HAYES, M.D.

DR. HAYES showed a hairpin, surrounded by phosphatic deposit, which he had removed from the bladder of an

unmarried girl, æt. 18. She stated that eighteen months ago last Christmas it was introduced into her "person" by a strange woman. Beyond some frequency of micturition, pain, and general discomfort, she suffered nothing till last Christmas when her urine began to run involuntarily from her. This incontinence had continued ever since with augmenting pain and much loss of flesh. When seen the girl was greatly emaciated, very pale, flushed cheeks—in short, all the signs and symptoms of some serious wasting disease. On passing the finger within the vagina, a lump of stony hardness, irregular on the surface and about the size of a very large walnut, was felt through the anterior vaginal wall, blocking somewhat the passage. An opening, admitting the tip of the little finger, was seen to the right side of, and behind the meatus on the anterior vaginal wall. This opening was stretched and enlarged by insertion of the index finger, and the hairpin was detected in the bladder thickly coated with calcareous deposit. The opening was then enlarged transversely by knife, the stone was crushed by a lithotrite, and the hairpin withdrawn through the opening. The interior of the bladder was found in an advanced state of chronic inflammation; it was freely irrigated with boric lotion, and the opening in the vagina stitched up with fine fishing gut. The result had been very satisfactory. Urine could now be passed normally almost free from any deposit (pus, blood, or mucus), and there seemed to be no dribbling.

SOFT FIBROID TUMOUR OF UTERUS. HYSTERECTOMY.

By T. C. Hayes, M.D.

Dr. Hayes showed this specimen, it consisted of the fundus, body, and upper part of the cervix of the uterus

with a large, soft fibroid tumour growing interstitially from the anterior wall and fundus. It had been removed by him from a married woman, in King's College Hospital, æt. 39, on April 26th. The tumour reached up to the umbilicus and had been growing rapidly. It was freely moveable, in parts apparently fluctuating, and over the left side there was a loud, variable, souffle, much like that of gestation. The patient was married, but had never been pregnant. There had been no floodings, but since the autumn, when she first became conscious of the swelling, excess of menses. On account of the rapid growth, soft nature, and vascularity of the tumour, Dr. Hayes had recommended its removal. He opened the abdomen, found no adhesions, drew the tumour out of the abdominal opening, and transfixed the broad ligament on either side by a double ligature; one half of the ligature was tied embracing the upper borders of the ligament, and the other half to include some of the uterine vessels. The cervix was then transfixed by a pedicle needle carrying a double ligature, and firmly secured. The broad ligaments were severed, and the uterus cut across above the cervical ligatures; a portion of the edges of the cervical canal above the ligatures was cut out in the centre of the pedicle, the raw edges were brought together by catgut suture, while the end of the pedicle was covered by a fold of peritoneum, which had been stripped off from the tumour, and was now stitched to the side of the stump by catgut. The pedicle was then dropped into the pelvis. The vagina had been previously, and was now again, purified most thoroughly, and stuffed with pledgets soaked in eucalyptus and iodoform emulsion.

The patient had gone on without a bad symptom, the temperature had only risen for a day or so to 100°, and the stitches in the abdominal wound had been removed that day.

Dr. Heywood Smith congratulated Dr. Hayes on the result of his operation, and he felt convinced that this intra-peritoneal or rather sub-peritoneal treatment of the stump in hysterectomy

would be the operation of the future. He wished to ask Dr. Hayes whether, in passing the ligature through the cervix he had perforated the cervical canal. He also would like to know more accurately by what method the peritoneum was stitched over the stump.

Dr. LEITH NAPIER thought Dr. Heywood Smith was too particular as to the exact method of stitching the peritoneum.

Dr. HEYWOOD SMITH, asking to be allowed to explain himself, said he thought it was an important matter, as if the edges of the peritoneum were merely brought together the edge in healing might contract an adhesion with some portion of the intestine, as had happened in a case of Dr. Napier's. It was very desirable that information should be obtained as to which was the safer, that way, or, which he considered the best, so to sew up the peritoneum that the edges were inverted; by that means healing took place rapidly, and there was less chance of adhesions taking place to neighbouring tissues.

Dr. LEITH NAPIER thought it unnecessary to lay so great importance on the precise suture used in stitching the peritoneal edges as Dr. Heywood Smith seemed to think. No special suture was required, but exact approximation of the peritoneal flaps should be obtained by secure sutures of some sort. He asked if the uterine arteries were ligatured before cutting off the tumour from the pedicle. It was not necessary to dissect out the artery and tie the main trunks separately as had been done by some operators. Another important matter was drainage. The great risk in intra-peritoneal hysterectomy was hæmorrhage; he asked if Dr. Hayes employed a glass drain in this case. If perfect hæmastasis were always possible a temporary drain might be dispensed with; in the present state of our knowledge every case should be drained for, say twenty-four hours at least.

The PRESIDENT said he had often observed the rhythmical variations in loudness of the souffle over a uterine fibroid. He had been in the habit of teaching, that when over an abdominal tumour a souffle was heard, the loudness of which regularly increased and diminished in loudness in a rhythmical manner, independently of a variation in the condition under which it was listened for, that was positive proof that the tumour was uterine. Such a rhythmically varying murmur was not heard over any other organ. It told nothing as to the character of the enlargement; for it was heard alike in pregnancy with living or dead children, or moles, and even fibroids. The rhythmical variations corresponded to the rhythmical contractions of the uterus. He asked if Dr. Hayes had separately tied the uterine arteries.

Dr. ROUTH said he did not think there was anything very unusual in the variety of force in the souffle in fibroids. This would vary in force according to the locality in which it was heard, and the state of the patient's heart which in fibroid tumour

would affect the souffle, while it would scarcely do so in a pregnant woman. In fibroids the ordinary heart sounds would be transmitted, *i. e.* the double aortic heart would be transmitted through the tumour, by reason of its solidity. In these soft tumours (fibroid) where fluctuation appeared to be present, the sound would be very often transmitted, if the tumour were well pressed upon by the stethoscope. In pregnancy it was not heard unless the auscultation were made over the head of the child, or at any rate over a solid portion of the child's body, which, however, in no way interfered with the sound of the placental souffle.

Dr. HERBERT SPENCER could not congratulate Dr. Hayes upon the method he had adopted, and it was too early to do so upon the result of the operation. He considered transfixion and ligature of the cervix with thick silk one of the most dangerous of all the methods of intra-peritoneal treatment, for it afforded security neither against sepsis nor hæmorrhage. He understood that Dr. Hayes had not separately ligated the uterine arteries. With reference to the late results of the intra-peritoneal treatment, he called attention to the three cases of Klotz which, although they "recovered," yet all died within three years from septic peritonitis, caused in the operator's opinion by vaginal infection of the silk ligatures employed. It should also be borne in mind that the opinion of operators of the greatest experience was unanimously in favour of the extra-peritoneal treatment as being the safer with our present methods. Should, however, the intra-peritoneal treatment be chosen, either the retro-peritoneal method of Chrobak or Freund's total hysterectomy seemed much preferable to the method adopted in Dr. Hayes's case.

Mr. BUTLER-SMYTHE thought that the cases were few and far between where the intra-peritoneal method could be employed with safety. In most of the hysterectomies which had come before his notice it would have been impossible to treat the pedicle in the way proposed. It certainly seemed strange that the gentlemen who advocated this treatment and who were already congratulating each other on their successful results, were not those operators who had had the largest experience in the operation of hysterectomy. They talked of tying the uterine arteries, as if it were a very simple matter, whereas, in his experience, one of the most difficult feats in abdominal surgery was to find and tie the artery when the uterus was expanded by a large and often irregular mass. He could not see how the supply of blood to the uterus was to be cut off by ligaturing the broad ligament in the way described by Dr. Hayes. If the ligature were tied as described by Dr. Leith Napier, the hæmorrhage might be controlled, but this one point made all the difference between the operations.

ON THE LOCHIA.

By Arthur E. Giles, M.D., B.Sc.Lond., M.R.C.P.

(Received August 16th, 1892.)

(*Abstract.*)

In this paper the author gives the result of investigations on the quantity of lochia after labour. The method employed is described and sources of error discussed.

The conclusions derived from observations on sixty cases are as follows:

1. The average normal quantity of lochia is about 10½ oz.
2. The duration of the discharge is on the average nine or ten days.
3. The degree of parity does not influence the quantity.
4. Non-suckling does not increase the discharge.
5. The quantity is generally greater in younger women up to the age of twenty-five.
6. The weight of the child has a slight, and that of the placenta a well-marked, influence; the quantity increasing with the weight of the placenta.
7. The quantity increases with the amount of hæmorrhage at the time of labour.
8. The lochia are more abundant in the case of those who habitually menstruate profusely.
9. The quantity is generally greater in the case of women of darker complexion.

The difference between Gassner's results, viz. 52¼ oz., and the author's, viz. 10½ oz., is attributed mainly to the use of antiseptics, partly to the effect of astringent douching.

The factors that influence the quantity of lochia are discussed.

The author believes that the three discharges—during menstruation, during labour, and during the puerperium—vary simultaneously; the quantity depending on predisposing conditions, of which the amount of pigmentation is generally an index; and that all three discharges are habitually greater in darker women.

The quantity of the discharges after normal labour has been investigated only in very few instances; and as nothing has been published on the subject since the introduction of antiseptics, I offer the following contribution.

The views of the profession as to the nature of the lochia have now changed. No longer regarded as mysterious humours related to the milk secretion, they are considered to represent simply the discharge that comes from any wounded surface, modified by the secretion of the vaginal and cervical mucous membrane, and more freely mixed with blood because the uterine vessels are not so perfectly secured as are the vessels in an ordinary operation wound.

It is natural that taking this view, one should not adhere to the artificial division of the lochia into "cruenta," "serosa," and "alba;" nor have I made any attempt to determine the weight of each of these three varieties. For, however useful the distinction might be clinically in certain cases, I think that it has no scientific basis in these days; although it may have held good at a time when suppuration was regarded as normal in the discharges both from the healing wound and from the involuting uterus.

My observations were made at the General Lying-in Hospital, Lambeth, on sixty-four consecutive cases during the months of January and February, 1892.

I take this opportunity of thanking Dr. Herman and Dr. Cullingworth for their interest in my investigations, and for kindly criticism.

The lochia were received in wood-wool pads covered with sublimate gauze. These pads were made carefully to scale in two sizes, 1 oz. and ½ oz. respectively; the former being employed at first in each case, and replaced by the smaller ones as the discharge diminished.

After removal, each pad was at once again weighed, the difference representing the amount of discharge during the time that the pad was on.

When, two or three times in succession, the soiled pad was found not to have gained in weight, the "lochia" were regarded as having ceased.

Table I is a sample of the way in which the observations were put down in each case.

TABLE I.—No. 1, Mrs. C—, Ward C.

No. of pad.	Date.	Hour of removal.	Original weight of pad.	Weight of pad + lochia.		
			drms.	oz.	drms.	
Delivery	Jan. 4	1.30 p.m.				
1	„	6.30 p.m.	8	4	13	
2	„	10.45 p.m.	8	1	12	
3	Jan. 5	3 a.m.	8	...	18	
4	„	10 a.m.	8	...	17	
5	„	6.30 p.m.	8	...	12½	
6	Jan. 6	3 a.m.	8	...	11½	
7	„	10.45 a.m.	4	...	6	
8	„	6.10 p.m.	4	...	5	
9	Jan. 7	4 a.m.	4	...	6	
10	„	10.30 a.m.	4	...	4½	
11	„	6 p.m.	4	...	6	
12	Jan. 8	7 a.m.	4	...	6	
13	„	6.30 p.m.	4	...	5	
14	Jan. 9	5.30 a.m.	4	...	5	
15	„	6.20 p.m.	4	...	4½	
16	Jan. 10	6.15 a.m.	4	...	4	
17	„	8.30 p.m.	4	...	4	
18	Jan. 11	10.45 a.m.	4	...	4	
Total			96	5	144	
Minus weight of pads			...	...	96	
Lochia (net weight)			...	5	48	Avoirdupois =11½ oz.

Table II.

No.	Name.	Age.	Parity.	Civil state.	Complexion.	Suckling or not.	Loss at labour.	Sex of child.	Weight of child.	Weight of placenta.	Lochia.	Particulars of menstruation.	Remarks.
							oz.		lbs. oz.	oz.	oz.		
1	C.	29	4	M.	D.	Yes	10	M.	8 4	19	11·5	Very little; 5 days; about 1 Diaper daily.	
2	F.	20	1	S.	D.	,,	6	M.	6 12	19½	12·25	Good deal; 4 days; 4—5 D. daily.	
3	W.	20	1	S.	D.	,,	15	M.	6 9	20	16	Not much; 3—4 days; 1 D. daily.	
4	S.	19	1	M.	D.	,,	10	M.	6 9	16¾	11	Good deal; 3—6 days; 5—6 D. daily.	
5	J.	21	2	M.	F.	,,	5	F.	5 12	12	10·1	Good deal; 7 days; 3—4 D. daily.	
6	L.	31	4	M.	F.	,,	28	M.	10 12	27	9·3	Not much; 4—5 days; 2 D. daily.	Very large child; uterus relaxed for a while after labour.
7	F.	45	14	M.	D.	,,	8	M.	6 11	21	19·1	"Always a lot;" 5—7 days; 4—5 D. daily.	
8	S.	26	1	M.	F.	,,	4	M.	6 13	23	8·4	Not much; 4 days; 5—6 D. in all.	
9	C.	20	1	M.	D.	,,	3	F.	5 9	—	11·1	Very little; 1 day; 1 D. in all.	
10	N.	21	1	S.	D.	,,	3	M.	7 3	23	9·1	Not much; 3—6 days; 7—9 D. in all.	
11	C.	35	7	M.	F.	,,	4	M.	7 2	22	7·75	Not much; 4 days; 2 D. daily.	
12	M.	30	6	M.	F.	,,	8	M.	7 4	23	12·3	Good deal; 6—7 days; 2—3 D. daily.	
13	R.	32	4	M.	F.	,,	6	F.	5 7	26	7·75	Little; 3—4 days; 2—3 D. daily.	Induced at 7 mos. for contracted pelvis.
14	B.	23	2	M.	M.	,,	6	F.	7 15	20·½	9·8	Good deal; 3—4 days; 4—5 D. daily.	
15	H.	31	7	M.	F.	,,	4	F.	8 0	20	10·25	Good deal; 3 days; 4—5 D. daily.	
16	J.	25	1	M.	D.	,,	4	M.	6 0	—	5·87	Not much; 3 days; 4—5 D. daily; just soiled.	

No.	Name.	Age.	Parity.	Civil state.	Complexion.	Suckling or not.	Loss at labour.	Sex of child.	Weight of child.	Weight of placenta.	Lochia.	Particulars of menstruation.	Remarks.
							oz.		lbs. oz.	oz.	oz.		
17	Y.	23	3	M.	F.	Yes	7	F.	6 11	19½	8·2	Very little; 3 days; 3 D. in all.	
18	B.	25	2	M.	D.	No	6	F.	6 6	18	6·75	Good deal; 6 days; 12—14 D. in all.	
19	B.	24	1	M.	M.	Yes	9	M.	7 5	27	31	Very little; 2 days; 1 D. in all.	Several clots passed.
20	T.	21	1	M.	M.	„	5	M.	6 13	20½	8·3	Not much; 2—3 days; 3 D. daily.	
21	G.	29	2	M.	D.	„	6	F.	7 0	20	9·4	Very little; 2—3 days; 1—2 D. daily.	
22	W.	28	2	M.	D.	„	3	F.	6 2	16	11·75	Abundant; 5 days; 2—3 D. daily.	
23	M.	31	6	M.	F.	„	8	M.	5 15	23	24·5	Not much; 3 days; 6 D. in all.	Several clots passed.
24	F.	23	1	M.	D.	„	4	M.	7 6	27	25·75	Very little; 4 days; 2—3 D. in all.	Ditto.
25	M.	37	9	M.	D.	„	15	M.	7 5	22	10·25	Great deal; 7 days; 12 D. in all.	
26	P.	26	3	M.	F.	„	4	M.	6 4	18½	9·8	Not much; 3—4 days; 2—3 D. in all.	
27	H.	20	1	S.	F.	„	4	M.	6 4	20	6·6	Not much; 4—5 days.	
28	P.	28	1	M.	D.	Partly	6	F.	7 6	22	10	Abundant; 7 days; 8—9 D. in all.	Baby died 5th day from pneumonia.
29	H.	25	2	M.	D.	Yes	4	F.	6 9	21	17	Very slight; 5 days; 6—7 D. in all.	
30	J.	22	1	S.	F.	„	10	F.	8 9	31	12·75	Much; 4—5 days; 8—9 D. in all.	
31	R.	34	9	M.	D.	„	14	M.	9 14	28	14·25	Scanty; 3—4 days; 2—3 D. in all.	
32	H.	21	1	M.	F.	No	3	F.	5 9	18	10·8	Not much; 4 days; 6 D. in all.	Much anasarca; albumen on admission; no milk.
33	P.	21	2	M.	D.	Yes	32	F.	8 3	29	15·8	Good deal; 3—4 days; 9 D. in all.	
34	B.	28	5	M.	F.	„	16	F.	7 0	22	22·5	Very much; 6 days; 18—24 D. in all.	
35	A.	31	7	M.	D.	„	8	M.	7 13	25	6·25	Not much; 4 days; 3 D. in all.	
36	J.	24	3	M.	F.	„	4	F.	7 8	26	17	Very slight; 2 days; 2 D. in all.	
37	W.	26	1	M.	D.	„	4	M.	7 7	21	6·6	Moderate; 3 days; 6—10 D. in all.	

38	C.	27	4	M.	F.	Yes	3	F.	6 8	17	8	Not much; 3 days; 2—3 D. in all.	
39	G.	35	4	M.	M.	„	18	—	8 11	26	12	Very little; 1—2 days; 0 D.	
40	C.	23	2	M.	D.	„	6	M.	6 15	25	12·6	Abundant; 7—8 days; 10—12+ D. in all.	Uterus still large on 12th day.
41	H.	38	9	M.	D.	„	6	M.	8 0	20½	7·6	Very little; 3 days; 3 D. in all.	
42	F.	20	1	M.	D.	„	3	M.	8 2	25	11·4	Not much; 3 days; 5 D. in all.	
43	G.	28	4	M.	F.	„	6	M.	7 8	20½	8·5	Good deal; 6 days; 15—18 D. in all.	
44	L.	27	1	M.	D.	No	10	M.	9 6	18½	8·2	Good deal; 7 days; 20—23 D. in all.	
45	F.	23	1	M.	D.	„	30	M.	7 8	20	21·6	"Great deal;" 3—4 days; 6—7 D. in all.	
46	S.	27	1	M.	—	Yes	16	F.	5 14	21	15·25		
47	F.	18	1	M.	M.	„	7	F.	6 15	23½	10·75	Very little; 3 days; 0 D.	
48	W.	18	1	S.	F.	„	6	M.	8 8	24	14·2	Very slight; 2—3 days; 2—3 D. in all.	
49	F.	20	1	M.	F.	„	2	F.	7 2	30	10·6	"Very free;" 7 days; 7—12 D. in all.	Macerated fœtus.
50	H.	25	2	M.	D.	„	24	F.	8 0	17½	54·6	Not much; 3 days; 5 D. in all.	Piece of retained placenta.
51	C.	22	2	M.	M.	„	20	M.	5 14	20	24·6	Good deal; 9 days; 12—13 D. in all.	
52	B.	23	2	M.	F.	No	4	M.	7 15	24	4·8	"Hardly see anything;" 3 days; 2 D. in all.	Child still-born.
53	C.	21	2	M.	D.	Yes	10	M.	7 6	22	16·75	Good deal; 6—7 days; 12 D. in all.	
54	M.	22	1	M.	F.	„	9	F.	4 14	18	9	Not much; 7 days; 6—8 D. in all.	
55	D.	21	1	M.	D.	„	6	M.	6 10	19	13·8	Good deal; 3 days; 6—7 D. in all.	
56	F.	30	6	M.	M.	„	3	M.	7 13	22	7	Not much; 7 days; 8 D. in all.	
57	J.	31	3	M.	D.	„	40	2 M.	{6 0 / 6 5}	34	17·25	—	Twins.
58	K.	22	2	M.	D.	„	5	M.	8 13	29	7·5	Not much; 3 days; 1—2 D. in all.	
59	P.	22	1	M.	F.	„	3	F.	6 12	18	8·25	Not much; 6—7 days; 6—7 D. in all.	
60	D.	25	1	M.	D.	„	6	M.	3 10	15	4·5	Little; 1—2 days; 4—5 D. in all.	Premature; 7 mos.
61	G.	22	2	M.	F.	„	8	F.	6 5	19½	9·3	Very little; 7 days; 3 D. in all.	
62	V.	25	1	S.	D.	„	4	F.	7 2	21½	7·75	Not much; 6—7 days; 8 D. in all.	
63	B.	34	2	M.	F.	„	6	M.	7 1	19	4·4	Good deal; 5—6 days; 24 D. in all.	
64	W.	29	2	M.	D.	„	64	M.	8 4	15	2	Not much; 5 days; 6—7 D. in all.	Severe post-partum hæmorrhage.

In Table II the 64 cases are tabulated so as to show, besides the quantity of lochia, the age, parity, civil state, and complexion of the patient, the loss at the time of labour, the weight of the child and placenta, and particulars as to suckling and menstruation.

In this table we note that in one case (No. 50) there was a piece of retained placenta ; and in three others (Nos. 19, 23, 24) clots were passed after some days, which may also have been due to incomplete emptying of the uterus, although no fragments of placenta or membrane were found. As these four cases are not normal, I have not included them in any of my calculations, which are therefore made on the sixty remaining cases.

There are several sources of error to be considered.

1. Loss by evaporation.
2. Escape of lochia with the douche.
3. Admixture of urine.
4. Inaccurate weighing.

Taking these in succession, the loss by evaporation, the pad being on for the most part only six to eight hours, is insignificant, especially in view of the position of the pad as confined by the parts of the patient's body and the bedclothes, and of the fact that the discharge very seldom passed through to the outer surface of the pad.

I made some attempts to estimate the quantity lost in the douching by measuring exactly the quantity of solution used and the quantity that came away into the bedpan. But as the latter quantity was generally a trifle less than the former, I concluded that any loss of lochial discharge was probably more than compensated by retention of some of the irrigating solution in the vagina.

Inasmuch as the urine was drawn off by catheter during and soon after labour, the larger quantity of lochia observed during the first twenty-four hours may be regarded as quite independent of any admixture of urine; whilst, later, when the additional increment to the weight of the pad was only a few drachms, addition of urine would

have been, and two or three times was, at once detected.

Error of weighing was limited to about a ¼ of a drachm, inasmuch as the weighing was carefully done as far as a ½ drachm weight would indicate it.

Taking these considerations together, I think that the results may be regarded as substantially accurate.

Exact figures down to grains are from the nature of the case impossible, and owing to the variation in different cases unnecessary. Further, the exact amount of lochia, even within the limits of error of an ounce, is of less interest than the variations in different cases, and the marked diminution which, as I shall hope to show, has been brought about by antiseptic practice and astringent douching.

I gather, then, from the 60 cases the following results:

The lowest quantity is 2 oz., the highest 24 oz.

In 30 cases, or 50 per cent., the quantity is 10 oz. or less.

In 19 cases, or 32 per cent., the quantity is 10—15 oz.

In 8 cases, or 13 per cent., the quantity is 15—20 oz.

In 3 cases, or 5 per cent., the quantity is over 20 oz.

The average quantity, taking the whole of the 60 cases together, is 10·89 oz. If we exclude 3 cases above 20 oz. the average calculated on 95 per cent. is 10·2 oz. Hence we conclude that the average normal quantity of lochia is about 10½ oz.

The duration of the discharge was from five days to a fortnight, and was distributed as follows:

In 4 cases . 5 days.	In 6 cases . 10 days.
In 4 „ . 6 „	In 7 „ . 11 „
In 10 „ . 7 „	In 6 „ . 12 „
In 11 „ . 8 „	In 1 „ . 14 „
In 11 „ . 9 „	

That is in 40 cases, or 66 per cent., it was 9 days or under. The average on all the cases is 9·75 days.

A practical deduction is that it is usually safe for the patient to get up on the ninth day, and, in fact, this rule

has been in force for some time at the General Lying-in Hospital.

I have tried to ascertain what factors cause variation in the quantity of lochia, and the results are set forth in the following tables.

1. *Influence of Parity.*

TABLE III.

Parity	I	II	III	IV	V	VI	VII	VIII+
No. in each class	25	15	4	6	1	2	3	4
Average weight of lochia	10·5	10·87	13·06	9·5	22·5	10·05	8·08	12·8

TABLE IV.—*Summary of III.*

Parity	I-paræ.	II—IV paræ.	VI + paræ.
No. in each class	25	25	9
Average weight of lochia	10·5 oz.	10·8 oz.	10·6 oz.

These tables show sufficiently clearly that the degree of parity has no influence on the weight of the lochia.

2. *Influence of Suckling.*

In 53 cases in which the patient nursed the baby the average was 11·2 oz., in 7 cases in which the child died, or was fed by hand, the average was 10·3 oz. The number in the latter class is small, as only two were still-born, and among the others weaning was not encouraged. But though the number is too small for much stress to be laid on the figures, it is at least clear that non-suckling does not increase the quantity of lochia.

3. *Influence of Age.*

TABLE V.

Age	Under 20	20—24	25—29	30—34	35—39	40+
No. in each class	3	25	18	9	4	1
Average weight of lochia	12	11·91	9·65	9·95	9·4	19·1

Or summarized	Under 25	25—40	(Over 40.)
	28	31	(1)
	11·9 oz.	9·7 oz.	(19·1)

This table shows that age has some influence, and that the average quantity of lochia is greater in younger women up to the age of twenty-five.

4. *Influence of Weight of Child and Placenta.*

TABLE VI.—*Weight of Child* (59 cases recorded).

Weight of child	Under 6 lbs.	Under 7 lbs.	Under 8 lbs.	Under 9 lbs.	Over 9 lbs.
No. in each class	7	19	20	10	3
Average weight of lochia	9·7 oz.	10·7 oz.	10·5 oz.	10·5 oz.	13·6 oz.

TABLE VII.—*Weight of Placenta* (57 cases recorded).

Weight of placenta	20 oz. and under.	25 oz. and under.	Over 25 oz.
No. in each class	27	20	10
Average weight of lochia	9·5	11·5	12·4

Though the variation in the weight of the child does not markedly affect the weight of the lochia, still on the whole the loss appears to be greater with large children and less with small ones; whilst with children of average weight, the weight of the lochia was also about the average.

On the other hand the weight of the placenta has a distinct influence so that the quantity of lochia increases with the weight of the placenta.

5. *Influence of the Amount of Hæmorrhage at the Time of Labour.*

TABLE VIII.

Hæmorrhage at time of labour	4 oz. or less.	5—8 oz.	9—18 oz.	19—40 oz.	(Over 40 oz.)
No. in each class	20	23	11	5	(1)
Average weight of lochia	9·5 oz.	9·8 oz.	13·3 oz.	17·6 oz.	(2)

The amount of hæmorrhage at the time of delivery was measured in each case, and for purposes of comparison the figures are accurate enough. They show that the two are

closely related, and that the amount of the lochia increases with the loss at the time of labour.

6. *Influence of the Habitual Amount of the Menstrual Flow.*

TABLE IX.

Menstrual flow.	Habitually little.			Habitually much.		
	No. of cases.	Per-centage.	Average wt. of lochia.	No. of cases.	Per-centage.	Average wt. of lochia.
Lochia :						
Below 10 oz. .	24	68·5	7·75	5	21·8	7·57
Above 10 oz. .	11	31·5	13·36	18	78·2	14·31
Total . .	35	100	9·31	23	100	12·85

In dealing with the menstrual flow one is not dealing with measured quantities, but with approximations which are no doubt influenced by the personal equation of the patient. What one considers a little or a moderate loss another may regard as a good deal. Nevertheless, the division of the cases on the broad lines adopted in the table into those who lose little and those who lose much will probably give substantially reliable results, and the conclusion to be drawn from this method is certainly that the lochia are more abundant in the case of those who habitually menstruate profusely.

7. *Influence of Physical Temperament as indicated by Complexion.*

TABLE X.

Complexion . . .	Fair and medium.	Dark.
No. in each class . .	28	30
Average weight of lochia .	9·95	11·24

I do not lay great stress on this table because, naturally, the subject does not lend itself to mathematical accuracy, but it is interesting and suggestive to conclude, as I think we may, that the lochia are generally more abundant in the case of women of darker complexion. I may refer in this connection to an interesting paper by Dr. Champneys

on "Pigmentation of the Face and other Parts."* He found that a special pigmentation of the face, in seven out of eight cases that came under his notice, was associated with irregularities in the menstrual function, and became more pronounced at the monthly periods. Dr. Champneys points out further that a highly nervous temperament is also often associated with abnormalities of pigmentation. The influence of pregnancy on pigmentation is, of course, well known.

In referring to what has been written before on this subject, we find that Gassner† gives the following as the result of his researches:

Lochia rubra, 1—3 day . .	1000 grms.
Lochia serosa, 4—5 day . .	280 „
Lochia alba, 6—8 day . .	205 „
Hence a woman after labour loses in 8 days . . .	1485 grms. = 52·29 oz.
A nursing woman loses in all only	1085 grms. = 38·2 oz.
Whilst a woman not nursing loses	1880 „ = 66·19 oz.

These figures are quoted by Galabin, Winckel, and other writers on midwifery.

It will at once be seen that there is a wide difference between Gassner's average of 52¼ oz. and my average of 10½ oz., in fact the proportion is as 5 to 1. And as we have no reason to doubt the accuracy of Gassner's results, it becomes necessary to inquire into the cause of this divergence.

It might be due to—

1. Race.
2. Surroundings.
3. Treatment.

We know that race influences the habitual amount of the menstrual flow, and analogy would lead us to endorse Gassner's statement that it influences the amount of lochial discharge. But that it should increase it five-fold, or diminish it to one fifth is inconceivable. We must, there-

* 'St. Barth. Hosp. Reports,' xv, pp. 233 *et seq.*

† 'Monatsschrift für Geburtsh.,' vol. xix, p. 5.

fore, look to the difference in surroundings and treatment, and this difference is chiefly found, I think, in the introduction of antiseptics into obstetrical practice. Till comparatively recently it was considered normal that the lochia should be somewhat purulent from the fifth to the eighth day; now we no more expect this than we expect a purulent discharge after an operation, and we know that suppuration greatly increases the discharge. I need not dwell on the antiseptic methods adopted at the General Lying-in Hospital; they have been fully brought before the notice of the Obstetrical Society by Dr. Boxall, and if they are not yet perfect, they at least give excellent results. It is mainly to this antiseptic treatment that I attribute the marked diminution in the quantity of lochia that is shown by the series of sixty-four cases at this hospital.

The quantity is probably further reduced by the astringent action of the mercurial douche, some of which, penetrating into the uterus, no doubt deposits on the denuded surface a thin coating of albuminate of mercury. It would be interesting to determine the weight of the lochia in a series of cases where no douche was used, comparing the results with those obtained in the case of other irrigating solutions, such as Condy's fluid, boracic lotion, alum, and sterilised water.

Passing on to review the causes of variation in quantity, we find that the degree of parity has no influence, and age very little, the amount of lochia being slightly greater in younger women. Gassner found that non-suckling very much increased the lochial discharge, viz. by 70 per cent. In my cases it made no difference of note, what difference there was being in the direction of diminution. Larger figures might, perhaps establish a relation, for though the lochia and milk are not mutually vicarious, the breasts and uterus are nervously associated, and *à priori* suckling might be expected to diminish the lochia by bringing about, reflexly, a more perfect uterine contraction.

Dr. W. J. Sinclair points out in an interesting paper,*

* 'Med. Times and Gaz.,' vol. ii, 1880, p. 260.

that the functions of breasts and sexual organs are often alternating in character. He found that when lactation was suddenly arrested hyperæmia of the ovaries and uterus frequently supervened. And this sheds some light on the nature of the relationship. But as Dr. Sinclair's cases did not refer to the period of the lochial discharge, I will content myself with this passing reference, in order that I may not get too far away from the present subject.

The weight of the child has a little and that of the placenta a well-marked influence on the total quantity of lochia, and this we should expect. Although the liquor amnii varies considerably, still, broadly speaking, the larger child will require the larger uterus with a larger blood-supply and larger placenta, and though also subject to variations, the larger placenta involves a larger denuded area, with consequently greater discharge. Had it been possible to tabulate the quantities of lochia according to the surface areas of the placentæ, the relation would no doubt have been even more marked.

Galabin mentions* that "the quantity of lochial discharge is apt to be more abundant with those who habitually menstruate profusely," and Table IX confirms this view. I find also that the quantity increases with increase of loss at the time of labour.

To complete the relationship between these three factors, it only remains to show that the menstrual discharge and the loss at the time of labour are themselves closely connected. For this we may refer to Table XI, which is an analysis of 141 consecutive cases at the General Lying-in Hospital.

When the menstrual loss is very little so that patients tell one that they "hardly see anything" it would appear that there are more cases with freer hæmorrhage during labour, but with moderate or normal cases the loss during delivery is distinctly less, on the average, than is the case with those who habitually menstruate profusely.

So I am inclined to think that there is a certain

* 'Manual of Midwifery,' 2nd ed., p. 271.

"physical temperament" (for want of a better term), characterised by abundant pigmentation and the brunette complexion, in which the tendency to hæmorrhage is greater; this tendency showing itself in profuse menstruation, greater loss at the time of labour, and more abundant lochial discharge; whilst conversely, with another kind of temperament, associated with little pigmentation and the

TABLE XI.

Menstrual loss.	Very little.			Little.			Much.		
	No. of cases.	Per-centage.	Average loss.	No. of cases.	Per-centage.	Average loss.	No. of cases.	Per-centage.	Average loss.
Loss at labour:									
5 oz. and under	7	25·9	4·1 oz.	38	64·4	4 oz.	18	32·7	4 oz.
10 „	12	44·5	7 oz.	14	23·7	7·8 oz.	26	47·3	7·6 oz
20 „	3	11·1	15 oz.	3	5·1	14·3 oz.	8	14·5	15·7 oz
Over 20 oz.	5	18·5	27·4 oz.	4	6·8	25·2 oz.	3	5·5	29 oz.
Total	27	100	10·9 oz.	59	100	6·8 oz.	55	100	8·7 oz.

blonde complexion, the tendency to hæmorrhage is less. What this ultimate difference consists in we do not know; it may be associated with protoplasmic qualities hitherto undiscovered.

The precise effect of these influences is obscured because their line of action is traversed by others, such as the weight of the child and placenta. But when all the factors are found together in one case, the effect is, as a rule, well marked.

Dr. AMAND ROUTH, whilst believing that too much credit could not be given to the author for his very painstaking paper, thought that the sources of error referred to in the paper were of more importance than had been assumed, and he thought that this in a great measure, accounted for the small quantity of lochia (10½ ounces) which was stated to be the average loss. He thought that the loss due to evaporation from the absorbent pads, at a temperature of 98·4° F. was considerable. He believed that much lochia would come away during defæcation and micturition, owing to the uterus being then stimulated to

contract, and owing also to the change in position of the patient. He noted that in Cases 19, 23, 24, where clots had passed, possibly in micturition, the lochia was about thirty ounces, and he believed that a considerable quantity of less tangible *débris* and discharge came away during micturition, and was a strong source of fallacy. The more a patient was losing, the more would she lose during micturition, &c. Conclusion No. 6 implied that there was only a slight relation between the weight of the child and that of the placenta, but from the author's own tables, Dr. A. Routh had calculated that the relation was very close. Thus by dividing the cases into three groups (instead of into five, as the author had done), viz., where the infant weighed under 6½ lbs. (15 cases); between 6½ and 7½ lbs. (27 cases); and over 7½ lbs. (18 cases); he found that the average weight of the placenta was 18½, 22, and 23½ ounces respectively. The author agreed that the three discharges during menstruation, during labour, and during the puerperium, varied simultaneously, but Table XI, showing the relation between habitual menstrual loss, to loss at labour, proved exactly the contrary, which only showed how tantalising statistics sometimes were. He asked if the author had noted the effect of ergot upon the lochia. He discussed the author's conclusions as to the effect of antiseptics in lessening the lochia, and pointed out that the only essential difference between a natural aseptic labour and an antiseptic one was that, as in these cases, vaginal irrigation had been carried out. Lochial discharges came mainly from the uterus, and as involution was a fixed process, he did not understand how vaginal douches could lessen uterine excretion. He could understand that intra-uterine astringent douches could do so, and he believed he had seen dangerous results follow partial or complete arrest of lochia apparently following such practices. He believed with Dr. Giles, that the quantity of lochia depended much upon the habit in menstruation, but also—as Dr. Churchill used to say—upon the area of the intra-uterine surfaces and especially of the placental site, which would be larger where there had been large children, twins (Case 57), or hydramnion, or in sub-involution as in Cases 40 and 50.

Dr. Leith Napier pointed out that Gassner's cases were under treatment a good many years ago; his patients were probably treated very differently to those of Dr. Giles. The German Hospital patient was essentially a clinical entity, and subject to considerably more interference from students than the patients delivered in the General Lying-in Hospital; they were a shorter time in bed; and the non-use of the obstetric binder in Germany might to some extent be regarded as favouring atonicity of the uterus. If any of these factors predisposed to imperfect uterine involution, the greatly increased lochial loss in Gassner's cases could be more readily understood.

Sub-involution signified endometritis of greater or less degree. Thorough emptying and maintained contraction of the uterus were of great importance; a very small shred of decidua might account for a greatly increased and persistent lochial flow. The class of patient also deserved consideration. He had observed that neurotic influences were of some importance. Unmarried primiparæ were more likely than married primiparæ to have more than average loss. When the lochia rubra ceased, about the fourth or fifth day, and returned shortly after, say on the eighth day, former writers, Churchill for example, regarded this as a manifestation of secondary hæmorrhage. He asked what effect the purge usually given about the third day had on the flow. Personally he thought that a saline purge caused an increase, and that the time-honoured castor oil had no such effect. He inquired what custom was observed at the General Lying-in Hospital if the red discharge continued for longer than an average period; whether ergot, hydrastin, or turpentine was the favoured drug.

Dr. Boxall joined the previous speakers in congratulating Dr. Giles on his paper. As regarded the duration of the discharge under the influence of antiseptic douching, his own observations exactly coincided with the author's second conclusion. But to this he would make an addendum of some importance. The average duration of the lochia in 100 cases which were entirely free from fever was 9·5 days. Taking this as a basis for comparison, he found that during the same period in 49 cases which had a trifling and transitory amount of fever (1 to 5 degrees estimated in increments above 100° F. × days), the average duration of the discharge was 9·7 days, but that as the amount of fever increased the duration of the discharge was appreciably prolonged. Thus, during the same period, there occurred ten other cases in which the rise of temperature was more marked or persistent (6 to 10 degrees and over-estimated as before). In these the average duration of the flow was 11·7 days. The duration was greatest in the two cases which had passed through the greatest amount of fever, extending in each instance to thirteen days. It was, however, worthy of note that among these cases no marked febrile illness occurred, and nothing of a septic character, nor associated with inflammation of the uterus and pelvic tissues, the elevation of temperature being due to such slight troubles as irritation of the breasts and bowels and other incidental influences; and yet the rise of temperature, slight as it was and of so short duration, proved to be associated with delay in the cessation of the lochia. The practical deduction to be derived from this was as follows:—Taking the date of the cessation of the lochia as an index of the involution of the uterus, it followed that where febrile disturbance occured, even when unassociated with sepsis and

inflammatory affections of the uterus and pelvic tissues, the satisfactory getting up of the patient was apt to be delayed in accordance with the height and duration of the fever.

Table showing variation in duration of lochia in comparison with amount of fever which has previously existed during the puerperium.

Amount of febrile disturbance.	No fever.	1 to 5 degrees.	6 to 10 degrees and over.
Number of cases . . .	100	49	10
Average duration of fever .	9·5 days	9·7 days	11·7 days.

The conclusion that non-suckling did not increase the discharge, though possibly true as a general statement, seemed to require some amplification before it could be accepted as applicable alike to the two categories of non-suckling women. There were, on the one hand, those who did not suckle because they had little or no milk secreted, and on the other, those who had a plentiful supply of milk, but of which they either could not or would not make use. Now it was quite conceivable that in the first class of non-suckling women the discharge might be diminished and in the second increased, and yet when considered under one head, no variation in the amount could be detected. Dr. Boxall would suggest, therefore, that in future observations upon the influence of suckling on the discharge a distinction should be drawn between the cases of non-secretion and of non-employment of the breast milk. In this connection he called to mind a case of concealed accidental hæmorrhage in which the fœtus had for weeks been retained *in utero*, and had undergone maceration. The after-birth immediately followed delivery of the fœtus, old blood-clot being distributed over the whole uterine surface of the placenta. It had undergone complete separation some time previously. In that case there was not only no milk secretion, but no loss at the time of delivery, and no lochial discharge subsequently. The uterine wound had apparently already healed. He thought it important to recognise the fact that even after a perfectly normal labour it occasionally happened that the lochia ceased sometimes completely and permanently, and sometimes stopped temporarily as early as the fifth day, although the patient was making a perfectly satisfactory recovery; and, further, that when intra-uterine irrigation had for any special reason been resorted to at the time of labour, the discharge during the after-progress of the case was often very slight in amount. The early cessation and the partial suppression (so called) of the lochia were in themselves, therefore, by no means necessary indications of danger. On the other hand, speaking from his own experience, he could call to mind no case

of grave puerperal illness, in which these had been prominent symptoms. He had made special observations as to this in the nine fatal cases of sepsis which he had reported from the hospital. In none of these had it occurred, nor could he call to mind any other instance within his knowledge. Possibly the routine douching may have prevented it among the hospital patients. In explanation of the discrepancy of the results arrived at by Gassner and the author, he apprehended that the routine employment of the douche at 100° F., and its consequent stimulant and tonic action on the uterine muscle had more effect than the astringent principle added to the water. But, with regard to the latter he might remind Dr. Amand Routh that the vaginal douche would come into direct contact with, and in virtue of the astringent element contained therein would tend to diminish the discharge from lacerations and wounds in the canal at any rate as high as the cervix, a by no means inconsiderable factor of the lochia in primiparous cases. And further, that even when the douche was given intra-vaginally the astringent might possibly diminish the discharge from the cavity of the uterus. As related in his paper on Mercurialism in the 'Obstetrical Transactions,' vol. xxx, p. 308, he had proved by experiment that the vaginal douche not infrequently penetrated to the uterus itself. Dr. Boxall's observations confirmed the author's conclusion as to the duration of the lochia. He found, further, that fever even of slight intensity and of short duration, and unconnected either with sepsis or with inflammatory disease of the uterus and pelvic tissues was apt to delay the cessation of the discharge to an appreciable extent, and, therefore, to postpone the satisfactory getting up of the patient. He suggested that in future observations as to the effect of non-suckling on the lochia, a distinction should be drawn between those who had little or no milk, and those who with a plentiful supply either could not, or would not give suck. He apprehended that in these two classes a difference in the amount of lochia would be found. He pointed out that early cessation and partial suppression (so called) of the lochia were in themselves by no means necessary indications of danger, for they often occurred when the case was progressing satisfactorily under routine douching. He considered that the temperature at which the douche was given, had more to do with diminishing the lochia, than the astringent. At the same time, the astringent element would doubtless tend to diminish the discharge from tears of the cervix and lower part of the canal, and even from the body of the uterus. He had already shown by experiment that even when given intra-vaginally the douche solution often penetrated to the cavity of the uterus.

Dr. Peter Horrocks thought that the paper was of interest and value in so far as it recorded careful observations on the

lochial discharge when patients were interfered with by systematic and routine syringing. He thought the discrepancy between Gassner's and Dr. Giles's results would be found to be due to this difference of treatment. In Gassner's cases the syringe was not used, and hence his results were those of more natural labours. Syringing was artificial, and in the majority of ordinary cases superfluous. He thought it would be very valuable if Dr. Giles would investigate sixty other cases in which syringing was not used. He could not agree with Dr. Boxall that suppression of the lochia with fever was not a grave symptom, on the contrary he thought it was one of the most important evidences of a serious condition.

Dr. WHEATON said that Dr. Giles's paper was of great interest, inasmuch as it gave them for the first time accurate information as to the amount of the lochia when strict antiseptic precautions had been employed throughout the lying-in period. The marked difference between the results as to the quantity of lochia, obtained by Dr. Giles under antiseptic and so to speak abnormal conditions, and those obtained by Dr. Gassner when antiseptic precautions were not employed, was, he thought, entirely due to the employment of the antiseptic douching with perchloride of mercury in Dr. Giles's cases. Several varieties of micro-organisms were found to be always present in the lochia when antiseptic precautions were not continuously employed, just as they were present in the secretion from any wound which was exposed to atmospheric contamination. These organisms, although comparatively speaking innocuous, yet by their presence in the uterus set up a certain amount of irritation and caused a more profuse discharge, just as was the case in a wound on the surface of the body. In cases treated throughout the lying-in period by antiseptic injections not only was the quantity of the lochia greatly diminished, but the so-called "green waters" which were due to the presence of pus cells in the discharge were absent; thus affording an additional argument in favour of the conclusion that the alteration in the quantity and character of the discharge was due to the absence of the micro-organisms which by their presence caused irritation and led to the formation of pus.

The PRESIDENT said that Dr. Giles's paper would enrich the 'Transactions' by a contribution of permanent value, for it was a record of facts. Certain sources of error had been mentioned which Dr. Giles had discussed in his paper. He (the President) did not think they could account for the difference between Giles's results and those of Gassner, for they must also have attended Gassner's research, and it would be interesting to know in what ways Gassner had guarded against them. He did not think that Churchill's statement, as to the source of the lochia, settled the question. He (the President) thought the

lochia came partly from the uterus, partly from the vagina. The vagina had to undergo involution as well as the uterus, and it was greatly stretched and compressed during delivery, and such injury to a mucous canal would make it liable to inflammation. It was very common, in examining women a few weeks after delivery, to find the vagina injected and containing pus. This puerperal vaginitis, he thought, was the chief cause of leucorrhœa being so much commoner in parous women than in virgins. The difference between Gassner's results and Giles's did not seem to him surprising, for Gassner's observations were made in a German lying-in hospital in the pre-antiseptic times, and the probability was that many of his patients had vaginitis and endometritis produced by the entrance of microbes. Giles's patients were protected from these diseases by antiseptics, and beside that, the antiseptic douche used twice daily had an astringent effect on the vagina. He did not agree with those who had said that puerperia in which douches were used were not natural. A natural lying-in was one which was not disturbed by any of the causes which produced disease. The douches, by destroying morbific germs, kept the lying-in natural. He only differed from Dr. Giles in one small point. It seemed to him that the variation dependent on the size of the child was about the same as that dependent on the size of the placenta, and not much less than it, as Dr. Giles had put it.

Dr. CLEVELAND said there was one source of influence on the amount of lochial discharge to which he attached considerable importance, viz. the imperfect contraction of the uterus. It was not enough to be satisfied with finding the organ of normal size immediately after the expulsion of the placenta, but its permanent contraction should be watched, and as far as possible ensured by continuous hand pressure for some fifteen or twenty minutes, as it was at this time that proneness to more or less dilation occurred. He agreed with Dr. Horrocks that indiscriminate syringing after delivery was an unnatural procedure, and he rather discouraged it in private practice unless there were special reasons for its adoption.

Dr. GILES, in reply, thanked the Society for the kind way in which they had received the paper, and for the interest shown therein—an interest which made it difficult to reply, inasmuch as there were so many points raised. The small quantity of the lochia had much astonished him when making the investigations, as it had evidently astonished the Fellows. Since sending in the paper he had come across a statement in Jacobi's "Question of rest for women during menstruation," p. 101, that "the menstrual flow and the sanguinolent lochial discharge are, when each is normal, almost identical in duration and quantity. It is the menstrual flow, however, which most often

transcends the period of four days." The author, however, gave no authority for the statement. With regard to the sources of error, they were fairly fully discussed in the paper. Dr. Routh mentioned evaporation and loss during micturition and defæcation; the former must have been insignificant, in view of the fact that the discharge seldom soaked through to the outer surface of the pad; and loss during evacuations would have been detected in the bed-pan, which was alone used during the period of observation. Ergot was given in a few cases; but the results were conflicting, and, in view of the small number of cases, he had not referred to them in the paper. Dr. Boxall had answered for him Dr. Routh's questions as to the efficiency of vaginal douching in reducing the quantity; and he would only add that it was the custom at the lying-in hospital, when a patient was still losing after labour, to give the vaginal douche as quickly as possible; and it was found that this checked the hæmorrhage. And further, he thought that probably some of the irrigating solution penetrated into the uterus and deposited on the raw surface a coating of albuminate of mercury; judging at least from the analogy of injured limbs treated by the mercurial bath, of which he had had some experience, as house surgeon, some years previously. Dr. Napier had asked whether the purge on the third or fourth day increased the discharge: so far as he recollected this was not the case; but there was in some instances a slight increase when the patient began to get up, or a slight return when the discharge had previously ceased. The treatment of hæmorrhage adopted at the General Lying-in Hospital was in the main this: the contraction of the uterus was first seen to and secured; a hot vaginal douche was given, and sometimes ergot as well; then, if the bleeding continued an examination was made, and, if necessary, the uterus was explored. Dr. Boxall's remark that there were two classes of non-suckling women, those who could and those who could not suckle was probably, he thought, the correct explanation of what had certainly seemed to him an anomaly, viz. the fact that in his cases the quantity of lochia was rather less in the non-suckling women. He was also much interested in Dr. Boxall's remarks as to the influence of fever on the duration of the lochia, and thought that his own cases would, if carefully looked into from this point of view, corroborate Dr. Boxall's results. The President had expressed some surprise that he had not laid more stress on the influence of the weight of the child: his reason was, that there were only seven cases in the first class (Table VI) and three in the fifth, and in the other three the quantities of the lochia were practically the same. Still, the figures as they stood were in harmony with what one would expect. He thought Dr. Hayes had not caught distinctly several parts of the paper, as several of his

questions were answered in the paper itself. He (Dr. Giles) had not hazarded too positive an opinion as to the origin of the lochia, but had adopted the view that the discharge was chiefly from the denuded placental side, with the addition of the cervical and vaginal secretions. The subject of the area of the placenta, as not necessarily related to its weight, and the retention of douching fluid, were also there discussed. Dr. Horrocks' suggestion that observations should be made in another series of sixty cases, in which an antiseptic was not used, was one that he had thought of, and should much like to carry out; but this kind of investigation was very difficult, except for one holding a resident appointment at a lying-in hospital.

AN UNUSUAL CASE OF HÆMATO-SALPINX (RECURRENT HÆMATO-SALPINX).

By. R. Lawford Knaggs, M.D.Cantab.

(Communicated by Dr. A. L. Galabin.)

(Received October 3rd, 1892.)

The following case is so unusual that I venture to place it upon record.

Mrs. — æt. 44, began to menstruate at eleven. She was always regular, every fourth week, till August, 1891. The catamenia lasted five days, till two years ago when they began to average five to seven days, and the quantity lost to be variable. She always felt better when the loss was greatest.

Fifteen years ago she contracted gonorrhœa (probably) and syphilis (certainly) from her husband. This was followed by a rash. She has had four children—twins, which died the day after birth, and two healthy girls —the last being born six months before the venereal condition appeared.

Mrs. — came under observation on October 17th, 1891. Two years before in November, half a day after the natural menstrual discharge had ceased, she went out to the post. She got home with difficulty in consequence of a sudden profuse vaginal discharge, which soaked into her boots. It was very offensive, deeper in colour than menstrual blood, and contained black lumps. This bloody discharge lasted twenty-four hours, and was succeeded by an offensive greenish-yellow discharge, so profuse that she laid on a couch and applied a sheet instead of a diaper. At this time she had much pain chiefly on the left side near the

groin, but during the preceding period there had been no unusual discomfort.

The purulent discharge ceased in a fortnight, and afterwards she felt better than before the trouble began, though previously she had hardly been conscious of not being well.

The next period was quite natural, and with the exception of "burning feelings in the left side low down" everything went on as usual till August, 1891, when a similar sequence of events occurred.

On Bank holiday the period ceased in the afternoon, and the next morning on getting out of bed the dark offensive discharge came on suddenly without a moment's warning. It contained black soft lumps an inch or two long. The dark bloody discharge lasted for two days, and was followed by the same greenish yellow discharge which lasted nearly a fortnight. There had been no antecedent discomfort beyond a slight feeling of fulness and a desire to micturate. She again felt the better for the discharge. Up to August the catamenia had been regular. The next period was missed, and on October 7th (a second period having been missed) on getting out of bed to get up, the offensive dark bloody discharge, again containing soft black lumps, once more occurred. Quite a pint came away with a rush causing "a feeling as of bearing down in labour." The dark discharge persisted till the 10th, and after passing through a purulent stage soon ceased. On the 10th she caught cold from having to wait at the railway station, and for the next few days she felt shivery, and had much pain round her hip bones, and kept her bed. She gradually improved and was up, when she sent for me on October 17th.

When examined, the abdomen was found free from tenderness and capable of palpation. There was a sense of resistance deep in the left iliac region and firm pressure here was uncomfortable. On vaginal examination, the uterus was about the normal size and could easily be grasped bimanually. It was pressed to the right side of the pelvis by a swelling in the left broad ligament. The uterus was

barely moveable, and the sulcus between it and the tumour could be felt nearly its whole length. To the left of the uterus was a tense, rounded, swelling, as big as a fœtal head reaching from the uterus to the side of the pelvis. The fingers could meet bimanually in front of it, and the examining finger could reach well up behind it. The swelling was not moveable, and felt as if it contained fluid. It was evidently situated in the left broad ligament.

The fixation of the uterus and tumour were due to anatomical conditions and not to cellulitis. The right appendage could not clearly be felt.

On the 23rd, she was seen by Mr. Mayo Robson, and a diagnosis of hæmato-salpinx was agreed to.

The same day she had an attack of diarrhœa which lasted for two or three days. It was probably due to cold, and it may be at once stated that it had no direct connection with what subsequently transpired. Whilst it lasted, however, some discharge of a dark offensive character came away by the vagina in small quantities in the night time and was noticed on the sheets. The total amount was estimated by the patient at "perhaps a teacupful." After the diarrhœa she quickly recovered her normal health, and on November 7th I made another vaginal examination. The uterus was still on the right side, more moveable, but the tumour had completely disappeared. In its situation some thickening could be felt bimanually but very little detail could be made out. There was slight tenderness. She entered a nursing home but operation had to be postponed in consequence of an irregular and unexpected menstrual discharge, and another attack of diarrhœa produced by a dose of magnesia. The tumour did not reappear before operation, which took place on November 20th.

When the abdomen was opened a swelling as big as a small peach was found at the pelvic end of the left broad ligament. It was immoveable, and firmly fixed to the brim and side of the pelvis. The ovary formed its posterior and lower surface. Its detachment was effected by working from the under surface of the ovary along the pelvic wall,

and as this was being done the ovary seemed to tear and a rough surface was exposed to the finger. This rough surface was the inside of a cavity which was partly bounded by the side of the pelvis. A portion of the interior of the cavity was left *in situ* where the pelvis entered into its formation. The whole of the swelling, however, was detached, and when drawn up into the wound proved to be chiefly composed of an ovary and a thickened and dilated ampulla of the Fallopian tube. The diseased parts were removed three quarters of an inch from the uterus, and the ligatured pedicle returned. The other ovary was found after some difficulty firmly adherent to the brim of the pelvis close to the right sacro-iliac synchondrosis. There was no swelling of the right Fallopian tube and as the symptoms had been limited to the left broad ligament it was decided not to interfere with it. There were some thread-like bands of adhesion about the uterus in Douglas's pouch which were ruptured during the examination.

There was very little bleeding and the abdomen was closed in the ordinary way.

The subsequent course was satisfactory and the patient made a good recovery, the temperature never reaching 100°.

The specimen is composed of the left ovary and the much thickened and slightly dilated Fallopian tube. There is a good deal of false membrane upon the anterior and posterior surfaces (of the broad ligament).

The abdominal extremity of the tube seems continuous by a part of its circumference with the tissue covering the ovary. Where the abdominal ostium and the ovary meet there is a cavity as large as a Barcelona nut, which has been formed in part by the extremity of the tube, in part by the ovary, and the adventitious tissue connected with it, and in part by the parietal peritoneum near the brim of the pelvis. That part of the cavity corresponding to the parietal peritoneum was left behind upon the side of the pelvis, and after the separation of the appendage, its rough interior could be easily detected *in situ*. In the

specimen the opening in the cavity is due to the absence of this portion of its wall.

Its interior is very irregular and rough, and the lumen of the Fallopian tube is directly continuous with it. Where the pedicle was tied—three quarters of an inch from the uterus—the tube was only slightly thickened.

From the proximal extremity of the specimen muco-pus could be expressed, and a similar secretion covered the interior of the cavity, but there was no noticeable collection of fluid, and no sign of blood.

Now it is open to question whether this case should be regarded as a variety of hæmato-salpinx, but clinically it appears to have a closer connection with that disease than with any other condition. The pathology of hæmato-salpinx does not at present seem to be thoroughly understood. Bland Sutton is of opinion that nearly all specimens supposed to be examples of it are cases of tubal gestation, and he thinks that the term hæmato-salpinx should be "exclusively reserved for Fallopian tubes in which the abdominal ostium is closed, and the dilated portions occupied by clot in which no evidence of pregnancy, such as an embryo, apoplectic ovum, or chorionic villi, is detected." 'Surgical Diseases of Ovaries and Fallopian Tubes,' p. 263.

With reference to the possibility of tubal pregnancy in the present instance, it should, perhaps, be stated that the patient had been separated from her husband fourteen or fifteen years; and as the abdominal ostium, though opening into an abscess cavity may be considered as closed for all practical purposes, the pathological appearances, as well as the peculiar history of three distinct septic floodings, would seem to eliminate that condition completely.

Was the tumour, which was discovered, due to the distension of the Fallopian tube and the abscess cavity that was continuous with it?

In case any doubt may possibly be entertained upon this point, it may be stated: (1) That the only unusual condition found on the left side at the operation was the

diseased state of the appendage, which has been described; and (2) that the floodings, which were becoming more frequent and appeared to have a close association with the catamenial discharges, or with periods at which they were due, have not occurred since the operation, although the menses have made one irregular appearance.

It is astonishing that so large a tumour could have been formed by the distension of such a thickened tube, and it is possible that the abscess cavity which formed a prolongation of the tube may have taken a large share in its production.

That the condition was, in the main, tubal is certain. The clinical and pathological facts all point to it, and they can be supported by an explanation, which, though it presents some points of difficulty, is fairly simple.

Before attempting this, several facts in the history of the case are worthy of notice.

1. The large quantity of the hæmorrhagic discharge, the unexpected suddenness of its onset, and its decomposing character, show that a collection of blood had existed for some little time before escaping. The profuse discharge which followed, and which was at first blood stained and subsequently purulent, was no doubt secreted by the cavity from which the blood came, and the diminution of the discharge probably corresponded with the shrinking of the cavity. A further deduction may be made, that, if the purulent discharge was secreted by the walls of the cavity, the blood was poured out from the same surface. And this is interesting, for the source of the menstrual blood is said to be the mucous membrane of the uterus; but here the mucous membrane of the Fallopian tube was diseased.

2. It is obvious that the cavity communicated with the generative passages, and the examination of the parts removed showed that it was a natural communication.

3. On the first and second occasions on which the sudden discharge took place, the menstrual period had just been completed, and presumably accounted for the

presence of the blood collection. And on the third and last occasion, though the period had been missed, the incident occurred shortly after the menses should, under ordinary circumstances, have ceased.

4. When the swelling was subsequently found on the left side it was evidently the cause of the discomfort that had begun seven days before, and which dated from a serious chill that the patient had caught by waiting at a railway station on a cold wet day. The third flooding had then taken place only three days before, and the after discharge had not ceased. On the previous occasions the purulent discharge lasted a fortnight, but this time it soon stopped, notwithstanding she had caught cold.

Now, assuming that the tumour was the distended and dilated tube and abscess cavity, the foregoing facts may be explained in this way.

During the catamenial period a secretion of blood took place into the tube, and its escape was prevented from blocking of the uterine opening by the swollen mucous membrane. As the abdominal ostium was also closed, a considerable collection took place within a cavity already septic. Decomposition of the blood ensued, and with the decline of menstruation, and diminishing of congestion, the block at the uterine end of the tube was removed, and the contents escaped. Temporary plugging of the opening by one of the clots would account for the sudden copious flow instead of a gradual relief through a slowly enlarging channel.

From the unhealthy lining of the septic tube and abscess cavity, a purulent discharge, at first more or less stained with blood, naturally resulted, and it became less as the cavity contracted, and the secreting surface diminished. On October 10th the cavity had emptied itself, and the subsequent discharge was in progress when the patient caught a serious cold. The parts again became congested, the block at the uterine end of the tube recurred, increased discharge—possibly with blood—took place into the cavity, and a tumour formed, which gave rise to much discomfort

from its tension. This was the condition that was found when the patient was first examined. As the congestion subsided, the block was again removed and the contents trickled away (this time gradually, possibly because of the absence of clots), and as the tension was relieved, the uncomfortable symptoms vanished, and the diseased appendage gradually resumed the appearance that was found at the operation.

Note.—Dr. Thomas Ashby, of Baltimore, has described a case having much the resemblance to the foregoing ('International Clinics,' vol. iii, p. 234). The patient, a woman of thirty-seven, suffered from intermittent and irregular hæmorrhage, which occasionally issued from the vagina on the least exercise, in sufficient quantity to deluge her clothing. A sausage-shaped tumour, not unlike a pus tube, had been observed within the pelvis, but was not always present. When the tubes were removed, the abdominal ostia were found closed, the walls hypertrophied, the mucous lining thickened and hyperæmic, and their cavities enlarged and containing dark grumous blood, but no clots.

The PRESIDENT said that Dr. Knaggs's case was a very interesting one, and his explanation of the phenomena was ingenious and plausible.

JUNE 7TH, 1893.

G. ERNEST HERMAN, M.B., President, in the Chair.

Present—38 Fellows and 2 visitors.

Books were presented by Dr. J. Braxton Hicks, Dr. John Phillips, the Westminster Hospital Staff, and the New York Academy of Medicine.

Harry W. D. Cardew, M.R.C.S.; Herbert Edward Powell, M.R.C.S.; and Robert Wise, M.D.Edin., were admitted Fellows of the Society.

Richard Henry Barber, L.R.C.P. & S.Edin. (Portland, Oregon, U.S.A.), was declared admitted.

The following gentlemen were proposed for election :— Arthur A. Beale, M.B., C.M.Glas; George Francis Blacker, M.B., B.S.Lond., F.R.C.S.; Herbert Thomas Crosby, M.A., M.B., B.C.Cantab.; Harry Finley, M.B.Lond. (Carlisle); Henry William Hubbard, L.R.C.P.Lond.; S. Bueno de Mesquita, M.B., B.S.Lond.; and Albert Rosenau, M.D.Würzburg (Kissingen).

FŒTUS IN PERITONEAL CAVITY: QUESTION OF ABDOMINAL GESTATION: WITH A SUMMARY OF REPORTED CASES OF PRIMARY ABDOMINAL AND OVARIAN PREGNANCY.

By Alban Doran, F.R.C.S., for Arthur A. Beale, M.B., C.M.

Dr. Beale supplies the following notes:

"On January 18th, 1893, I was called to Mrs. O—, aged about 38 years. I found her suffering from severe pains in the lower part of the abdomen, with no rise of temperature. She was intemperate, and of highly excitable disposition. She had borne no children for ten years. About five years ago her life was endangered by a serious flooding. Since then she suspected nothing like pregnancy. A woman who knew her well could vouch for her having been regular for a period of over nine months. The flow was free and irregular, often extending over the greater part of the interval. The patient had lived apart from her husband for many months previous to her decease, and she seems to have been of irregular habits for years. There was a tradition of an abdominal operation some years ago. Dr. Hague, who then attended her, declared that he had no remembrance of any such operation.

"Next day she felt slightly relieved, though still in pain. The bowels were opened by injections. In the night she became worse, collapse set in, the abdomen became distended, and she died.

"At the necropsy the great omentum was found covered with a thick layer of old organised lymph. There were other signs of old-standing peritonitis. The peritoneal cavity contained a grumous material.

"There were two perforations through the posterior

wall of the stomach, and one through the wall of the duodenum, of an ulcerous nature. The kidneys were small, granular, and nodulated. The heart was flabby, with ante-mortem clots within the cavity of both ventricles. The valves were thickened and calcareous, the right chambers gorged with blood. The right lung was greatly congested at the base. The left lung showed well-marked passive congestion; it sank in water.

"In the pelvic region, embedded in adhesions, was a fœtus, 1 inch in length. There was no sign of any abscess or free pus, though the constituents of the grumous material, free in the peritoneal cavity, were not evident."

Dr. Beale adds, in respect to the position of the fœtus: "May 8th, 1893.—I elicited a rather important fact, to-day, from the mortuary-keeper, who performed the post-mortem. He remembered distinctly that the skeleton fœtus was adherent to the left ovary, and that there was something like a membrane investing it. How far his impressions were to be depended on you must judge, but I may say that he has had vast experience in the way of post-mortems, and is especially interested in pelvic cases."

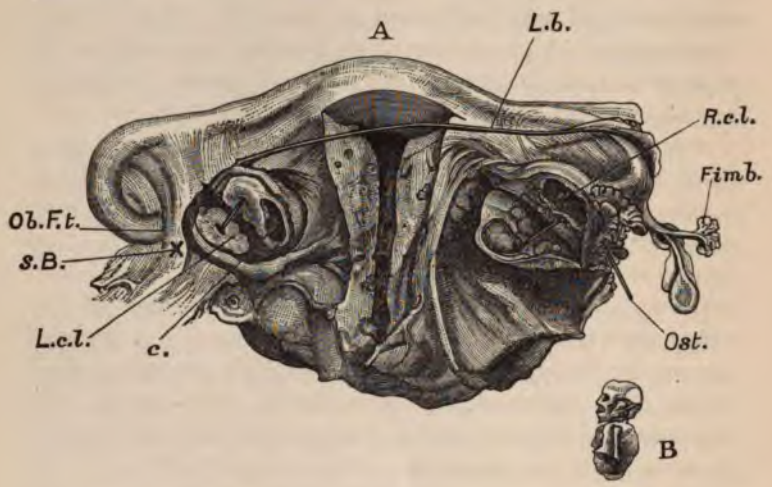
I examined the pelvic viscera with Dr. Beale at the Royal College of Surgeons on May 3rd.

The uterus and cervix measured 3¼ inches in length. The cervix was short and thick; it was elliptical, with large follicles. The uterine wall was over ½ inch thick. A flocculent dull red substance lined the uterine cavity; on microscopic examination it presented the appearances seen in chronic endometritis.

The appendages were covered with bands of organised lymph. One thin, very tough band, 4 inches long, ran between the anterior layer of the right broad ligament to the surface of the left ovary, crossing the right tube and the back of the uterus.

The right Fallopian tube bore a long, well-formed accessory fimbria, with a small pyriform cyst, attached half an inch above the ostium. There was no accessory

ostium in the folds of the fimbria. The normal ostium was quite unobstructed. There was no trace of a gestation-sac in the course of the tube.



MR. DORAN AND DR. ARTHUR BEALE'S CASE OF FŒTUS FOUND IN ABDOMINAL CAVITY.

A. Uterus and appendages. *Ost.* Glass tube passed into open ostium of right Fallopian tube. *Fimb.* Accessory fimbria. *R. c. l.* Recent corpus luteum in right ovary. *L. b.* Long band of adhesion passing from anterior layer of right broad ligament to surface of left ovary. *s. B.* Alleged site of attachment of the fœtus B to adhesions outside ovary. *L. c. l.* Large corpus luteum in left ovary. c. Cavity in ovary which contained fleshy body (old clot). *Ob. F. t.* Obstructed abdominal end of left Fallopian tube.

B. The fœtus (lumbar spine, pelvis, and lower extremities wanting).

The right ovary was thick, and measured 1 inch in long diameter. From its surface protruded a recent corpus luteum, with a small stellate rupture. Its cavity contained dark recent clot. In the interior of the ovary were several older corpora lutea. There was no evidence of a gestation-sac in this ovary.

The left tube was obstructed and dilated, and bore no gestation-sac. A broad perimetric band held it down to the ovary, passing behind the posterior layer of the

broad ligament. The adhesions outside the left ovary, in which it appears the fœtus was embedded, lay against the obstructed end of the tube.

The left ovary, 1 inch in long diameter, was almost spherical. It was embedded in adhesions, which held it downwards. A great part of its interior was occupied by a large corpus luteum, ½ inch long, of about the second month of pregnancy. There were also two smaller well-developed corpora lutea, so the functions of the ovary must have been very active. Below and beneath the large corpus luteum was an elliptical cavity, ⅜ inch in long diameter, containing a fleshy body enveloped in thin membrane, and attached to its inner wall by a short pedicle. There was no breach on the surface of the ovary over this elliptical cavity or elsewhere. A piece of the fleshy body, which was hollow and contained fluid blood, was removed for microscopic examination. It proved to be old, almost decolourised clot, and no trace of chorion could be detected; in fact it was a follicle, into which hæmorrhage had occurred. There was no sign of a gestation-sac in this ovary.

The fœtus, 1 inch in length and mummified, was incomplete, consisting of the cranium, ribs, scapulæ, and left humerus, with portions of viscera hanging from below the thorax. The fœtus was apparently buried in the membrane, which still hung from the left ovary. That membrane, however, bore no substance like the wall of a gestation-sac. It was thin, flocculent, and semi-transparent, like the membrane on other parts of the appendages. The left mesosalpinx was entire, bearing no evidence that a tubal sac had ruptured into it; the right mesosalpinx was also normal. Hence the case is not an example of secondary broad-ligament gestation, as in Dr. Aust Lawrence and Mr. Morton's case.* In that form of ectopic pregnancy a breach in the continuity of the tube must exist.

* 'Bristol Medico-Chirurgical Journal,' March, 1893. "A Case of Extra-uterine Gestation."

The precise cause of the death of the patient remains obscure. It could not have been due to rupture of a fœtal sac, as there was no such sac, and no effusion of blood or pus. The fœtus lay embedded in the products of very old-standing disease. Most probably some excess or exposure set up subacute peritonitis in a peritoneum long subject to chronic inflammatory changes. The kidneys and thoracic viscera being unhealthy, the patient sank, and after death post-mortem digestion occurred in the stomach and duodenum, so that the contents of the stomach were poured out into the peritoneal cavity. Dr. Arthur Beale and Mr. Targett are both inclined to believe that the perforations may be thus explained. On the other hand it is just possible that primary ulceration of the walls of the stomach occurred. Unfortunately the stomach was not preserved.

The cause of death, then, is a matter which the general pathologist must, if possible, decide. The case is of interest to this Society, because it suggests questions of high importance in relation to ectopic gestation. Is this specimen an example of primary abdominal pregnancy, or did the fœtus originally develop in the tube close to the ostium, and become detached,* adhering afterwards to the peritoneum?

It is not for me to assume that there is no such thing as primary abdominal or ovarian pregnancy. I cannot, however, feel satisfied with the evidence hitherto brought forward in favour of the existence of these forms of ectopic gestation. I will briefly summarise the cases recorded by the most authoritative writers, and other cases reported by men not so well known, who clearly deserve consideration on account of the care with which they have prepared their evidence.

1. Dr. Andrew Currier distinctly states that his case was not primarily tubal. "A dissection of the tube and

* Bandl ("Die Krankheiten der Tuben, einschliesslich der Extrauterine Schwangerschaft," Billroth und Luecke's 'Deutsche Chirurgie,' 1886, p. 51) was one of the first to advance this theory.

circumtubal tissue showed no evidence of rupture or abnormality of structure which could have suggested such an hypothesis."

The patient was twenty-seven years old; at the necropsy a fœtus of about the fifth month was found in a cyst "which included in its wall the right broad ligament, tube, and probably the ovary, though no trace of the original structure of the latter could be found. The tube was dissected out entirely, showed no evidence of rupture at any point, and was only of sufficient calibre to admit the passage of a fine probe. . . . . The left tube and the ovary were normal." The cyst lay, it appears, immediately under the parietes; it was, in Dr. Currier's opinion, "principally a development of the broad ligament, and did not appear to have any proper lining membrane." But the relatives of the patient would not allow the parts to be removed for thorough dissection. The relation of the sac to the broad ligament remains obscure. The fœtus, too, was of the fifth month. It might have slipped from the ostium very early in pregnancy. What the pathologist demands, in order to prove primary abdominal gestation, is a specimen where a very early fœtus lies ensconced in a sac quite free from the tube and far from its ostium.

2. In Dr. Enos Bigelow's case the patient, aged thirty-three, died of septic peritonitis, unoperated upon. A fœtus, 16 inches long, lay free in the abdominal cavity. "The right tube was thickened, distended with dark fluid, and involved in old adhesion. No rupture of either tube was discovered." The placenta was attached to the parietal peritoneum on the right side from 4 inches above the iliac crest to the pelvic cavity. There were three gallons of chocolate-coloured fluid in the abdominal cavity. As in Case 1 the fœtus was large. The right tube was in a suspicious condition.

3. Dr. Gouillaud, of Lyons, reports a case as "Abdominale," and it has been indexed as such. The pregnancy had lasted a year and the fœtus was 14 inches in

length. It was successfully removed, and Dr. Gouillaud wisely refrained from disturbing adhesions outside the sac. "L'on n'a pas fait de recherches pour préciser la variété de la grossesse extra-utérine." There is, then, no evidence that the gestation was abdominal. The heading of Dr. Gouillaud's paper includes the term, but it is dangerous to go by headings.

4. Chandelux's case was very similar. The pregnancy had lasted fourteen months, and a large fœtus was successfully removed. In attempts, afterwards given up, to separate the cyst from universal adhesions, the right tube and its fimbriated extremity were seen running up the inner portion of the cyst, and the left tube was also seen. The precise relations of the tubes to the sac remain obscure.

5. Dr. Walker, of Soleure, reported two cases, often quoted.

"The first case," he writes, "was a typical example of abdominal pregnancy. The tube and ovary on both sides, though contiguous to the fœtal sac, were not fused to it. The sac had developed in the deepest part of the retro-uterine pouch, and had only come in contact with those structures after further growth. Therefore tubal and ovarian pregnancy may safely be excluded."

Let us examine the report of this case. An eight months' child was delivered from the uterus, a tumour, of the size of a fœtal head, remaining behind. On the next day abdominal section was performed and a second fœtus* was found, lying free in the abdominal cavity towards the left iliac fossa. The patient died of hæmorrhage ten minutes after the operation.

The sac lay on the posterior layer of the left broad ligament. The left tube had sunk deeply into Douglas's pouch, its abdominal end turning inwards. It was fixed in this position by adhesions, and formed the boundary of

* The pregnancy is given as at the eighth month; but Dr. Walker states that in size and development the extra-uterine fœtus corresponded to the *30th—33rd week*, the intra-uterine to the 18th—20th week.

a pouch, open above, into which the tips of two fingers could be introduced, and the left ovary could be felt at the bottom of the pouch; but the relations of the ostium are not described, nor is it even stated whether it was open. There is no evidence that the ovum might not have slipped out of the ostium at an early stage; such an event seems to me highly probable. Dr. Lusk observes of this case:—"The correctness of the author's deductions has not, however, passed unchallenged, most of the recent reviewers regarding the history as indicating a tubal origin."

6. Dobbert's case is very similar to Case 5. The patient was twenty-six years old. The last period was on April 20th, 1888, uterine hæmorrhage occurred in June, pain with hæmorrhage in August. The uterus was found to be enlarged, a mass filled up the rest of the pelvis. It reached to two fingers' breadth below the umbilicus. Decidua was discharged on September 8th, pus escaped from the rectum on October 29th, and the patient died on November 3rd. There was adherent intestine, and a completely macerated skeleton of a five months' fœtus lay in a large cavity full of pus and bounded by adherent intestine, there being no true sac-wall. The right tube was hypertrophied, pervious, and undamaged, the ovary hypertrophied. The slit-like ostium abdominale of the tube, covered with pus, measured five millimetres in diameter and opened directly into the cavity (und mündet unmittlebar in die Höhle). A sound could be passed through the entire tubal canal and showed no solution of continuity. The left tube was kinked by old adhesions, atrophied, and obstructed. Dobbert rightly argues that the five months' gestation could not have occurred inside the tube or tubal sac, but this does not prove that it did not begin in the tube. The opening of the ostium into the cavity is extremely suggestive, and I believe that it proves that the abdominal gestation was secondary. Dobbert speaks of the connection of the ostium with the sac as secondary and due to inflammation,

but inflammation closes the ostium and could not make it open into a cavity.

7. Walker admits that his second case was doubtful. The pregnancy had reached the eighth month, the pelvic viscera had become matted together and altered by disease. The abdominal end of the tube and its fimbriæ, as well as the ovary, could not be traced. He thinks that either of these structures might have been the original seat of the abnormal pregnancy. He bases his arguments on the microscopic appearances of the serous coat of the sac. He says that they were the same as he observed in his first case (No. 5 in these notes). But Zedel, in a monograph published this year, finds that the same changes are to be found in the serous coat of an ordinary tubal-gestation sac. There is hypertrophy and hyperplasia of the endothelium and very distinct hypertrophy of the subserous connective tissue, which is found to contain cavities full of blood. Some of these cavities are, he states, involutions of the endothelium, whilst others represent infolding of a piece of peritoneum. In secondary abdominal gestation, it is easy to understand how these changes may occur in the peritoneum modified by contact of the fœtal membranes. Walker's case is admirably recorded, but it is impossible for him to prove his point in a case where pregnancy is so far advanced.

8. Mr. Sidney Harvey's case of "Ruptured Abdominal Gestation Cyst" proved, on examination by a committee of this Society, to be an interstitial or tubo-uterine gestation. Let it be remembered that few if any of the other cases had the advantage of such a committee.

9. Schlegtendal's case is very remarkable. The patient, aged twenty-six, was admitted into a home about six months after her first confinement, from the effects of which she had never thoroughly recovered. Six days later she was seized with violent abdominal pain, when sitting upright in bed, and became very anæmic; the pain was intense. A tumour formed in the left hypogastrium. The patient died in a few hours. At the post-mortem the

right appendages were found normal, the uterus was slightly enlarged. A remarkable extensive subserous extravasation of blood was discovered, reaching from close to the diaphragm, downwards over the left side of the abdomen to Douglas's pouch and the cellular tissue around the sacrum. The mesentery and, it appears, the serous coat of the intestines, were infiltrated with blood. "The ovary was embedded in a deep pit of blue-black doughy tissue, whilst the tubal wall was tensely swollen, and with it the whole of the fimbriæ. *The lumen of the tube, however, remained clear.* The peritoneal investment had ruptured at one point," and there was, in consequence, a pint of blood free in the peritoneal cavity. It is not clear whether "peritoneal investment" ("Peritonealüberzug") refers to the serous covering of the extravasation, or to that part of the covering which was reflected over the tube. The extravasation is ascribed to the rupture of a vessel behind the peritoneum at a point near the spleen, where lay a sac "of the size of a man's fist," containing a small fœtus about six inches in length and of about the third month of pregnancy. The sac was within the peritoneal cavity, and the subserous tissue behind the area of the peritoneum to which it adhered was extremely vascular and a large vessel had ruptured.

Hence the subserous hæmorrhage around the tube originated, according to Dr. Schlegtendal's report, not down in the broad ligament, but high up in the abdomen behind the peritoneum. The history of a swelling developing in the left hypogastrium during the acute symptoms seems to indicate that the hæmorrhage began below. The previous clinical history is somewhat imperfect, though the report of the necropsy is very clear. Dr. Lusk and others have thrown doubts on the author's interpretation of this case. I do not see why it might not have originally been a "tubo-ovarian" gestation which had become detached from its original seat early in pregnancy.

These nine cases are all fairly reported, yet all must seem, in the opinion of those who have some experience in

the pathology of the female organs, to be doubtful. Indeed Gouillaud and Chandelux's cases are simply headed "Abdominal," nor is it distinctly implied, in the majority, that the abdominal gestation was primary. Many other cases reported as such are simply tubal pregnancies.*

Dr. Lusk attaches little credit to cases of "abdominal pregnancy" where the tubes are reported as intact and not in communication with the sac. In cases where the tubes are reported as intact, but in which there exists a direct communication between the tube on the affected side and the cavity of the sac, he believes that, as Mr. Bland Sutton and myself have often assumed, the ovum first developed in the ostium (see Cases 5 and 6). Dr. Lusk explains Treub's case in this way.

This theory that the fimbriæ may retract from an ovum developed in the ostium is supported by the high authority of Professor Braun, of Vienna, who observes that when the ovum develops in the outer part of the tube, the membranes may project freely from the ostium and contract adhesions to the surrounding structures. I may here turn attention to fig. 192, page 366, in the third edition of Dr. Martin's (Berlin) 'Pathologie und Therapie der Frauenkrankheiten.' It represents a "tubo-abdominal pregnancy" under his own observation. It is easy to understand how the embryo, with its umbilical vesicle and the greater part of the membranes almost entirely outside the ostium, could become detached from the tube and attached to peritoneum. Dr. Arthur Johnstone's (Cincinnati, Ohio) opinion in favour of abdominal pregnancy on the score that the peritoneum is a lymph-sac, and therefore fitted to receive an ovum, just as the tube, bared of

* The eleven original cases in Dr. Hölck's thesis on 'Abdominal gravidität' form a most instructive record of bold, justifiable operative intervention in ectopic gestation, but there is no evidence that in one single case was the abdominal pregnancy primary. In seven the fœtus was fully developed, in one it was alive at the sixth month, in two the fœtus was macerated, and in one only was it so young as the fourth month. In no case are the relations of the Fallopian tube to the fœtal sac described.

its cilia by disease, offers a surface for harbouring and fostering an ovum, is very theoretical, though it deserves consideration.

As to the manner in which the ovum is transferred from the ovary to the tube, it must be observed that Karl Heil, of Darmstadt, gives reasons why we should not trust in any of the theories which explain it. The "Fimbrienstrom" is very doubtful. Personally I believe that the ovum simply drops into the ampulla of the tube, for His and Kölliker's theory on the normal position of the ovary, which I have repeatedly verified in the course of abdominal section, shows how readily this may be effected.

It is necessary here to say a few words on primary "ovarian gestation." The evidence is perhaps less questionable than that brought forward in support of primary abdominal pregnancy.

1. Sänger's case is important owing to the reputation of the reporter which gives a kind of sanction to the belief in primary ovarian gestation; unfortunately even the very title of Professor Sänger's paper must make strong believers hesitate, for it reads "Ovario-*abdominal* Pregnancy, Litho-kelyphopædion* Abdominale. Placenta in a completely closed sac in the Left Ovary and Ligamentum Latum." There was a lithopædion of about seven months' development. The tube ran over the cyst and was lost on its surface. On careful scrutiny the end was found obstructed, the fimbriæ spread over the wall of the sac. The layers of the mesosalpinx were opened up, as in a broad ligament cyst. Chorionic villi from the cyst-wall seem to have invaded the contiguous tubal wall, and not a trace of ovarian tissue was found.

The pregnancy was in too late a stage to allow of proof that it was primarily ovarian, whilst the position of the fimbriæ goes far towards proving that the gestation was

* Gynæcology is indebted to Küchenmeister for this specimen of barbaric nomenclature. It implies that the peritoneal sac is involved in the calcification.

"tubo-ovarian." In other words it probably originated in the ostium.

2. Dr. Herzfeld records a case of primary ovarian pregnancy co-existing with normal uterine gestation. There was a successful operation performed. Successful operations are rarely compatible with a thorough anatomical examination of the affected parts. The fœtus was 19·1 inches long,—another case of late ectopic gestation, when relations are confused. The sac had, no doubt, all the relations of an ovarian cyst. The tube, enlarged as in ovarian cystic disease, was free, the fimbriæ normal, and the mesosalpinx perfect. Dr. Herzfeld admits that not a trace of ovarian tissue was found in the solid tissue forming the sac. It rather resembled plain fibrous tissue attached to the peritoneum. Neither Herzfeld nor Sänger deserve implicit belief in their doctrine that the presence of a trace of ovarian tissue in the sac is not necessary to prove that the gestation is ovarian.

3. Patenko's case is one of the most authentic, and it is best summarised in Dr. Lusk's review of the subject of ovarian gestation. "The right ovary was of the size of a hen's egg, and contained a cyst filled with serum. In it he found a body of a yellow colour of the size of a hazel-nut, which contained cylindrical and flat bones." They were identified as fœtal, and not mere dermoid-cyst growths. "The presence of corpora lutea and follicles in the walls of the envelope proved that the body was an ovary. The tube on the corresponding side was nowhere adherent to the sac. The abdominal extremity was closed and there were no traces of fimbriæ." I have carefully studied Patenko's original account. The patient was a widow, aged fifty-four, who died after amputation of the foot for caries; no further history could be obtained. The fœtal cyst was in the right ovary, the right ovarian ligament was 1½ inches long. Judging from the drawing in the original paper I cannot help suspecting that a tubo-ovarian cyst once existed, the calcified fœtus being cut off in the ovarian part of the cyst in course of time. This

would account for the follicles in the sac-wall which is turned towards the abdominal end of the tube. Dr. Johnstone, of Cincinnati, in reference to a similar case (Dr. Ashby's), believes that when the end of the tube adheres to the ovary, that organ may come to form the outside of the cyst which at first received blood from the fimbriæ. The ovum might sink into a crypt on the surface of the ovary and become covered in by ovarian tissue. This possible change has to be taken into account; it might explain Patenko's case which, I must admit, is strong evidence in favour of primary ovarian pregnancy.

4. Walter of Dorpat's case is remarkable in that the evidence was challenged by Mr. Lawson Tait. "Walter's specimen," said that surgeon, "is still in the Dorpat Museum, and I would suggest a careful investigation of it."* This investigation has since been made by Professor Runge, and it is said Dr. Walter's opinion is confirmed. But the sac had ruptured at the fifth month, the fœtus escaping into the abdominal cavity. Hence there are sources of fallacy already indicated in the relation of cases of abdominal pregnancy.

5. Leopold of Leipzig's case certainly would seem to be primary ovarian pregnancy, as far as we can judge from anatomical relations. But the fœtus was a lithopædion, carried for thirty-five years, and the sac-wall was calcified, so that not a trace of ovarian tissue could be found. The right ovary, however, was missing, the ovarian ligament ran into the sac, and the tube was distinct, the ostium and fimbriæ normal. The left appendages were healthy. The sceptic may think of Dr. Johnstone of Cincinnati's explanation of Dr. Ashby's case, but evidence in favour of Professor Leopold's opinion is strong.

Paltauf's case is sometimes included under "Ovarian Pregnancy," but some anomaly was present, in fact two tubo-ovarian cysts communicated, gestation occurred in

* 'Diseases of Women and Abdominal Surgery,' vol. i, 1889, p. 447. The author disposes satisfactorily of several more dubious cases.

the left cyst, and the ovaries were flattened on the surface of the cysts.

Winckel, in his well-known text-book on Midwifery, relates that "a woman may conceive through a fistula in the vaginal fornix after supra-vaginal amputation of the uterus, the ovaries being left behind (Koeberlé)."* This quotation, I find, refers to a case where the evidence is second-hand. It was originally reported by Keller, who writes, "This case of pregnancy occurred in a lady on whom M. Koeberlé had operated for a fibroid tumour of the uterus. All the body and part of the neck of the uterus had been amputated, but the appendages had to be left, as their removal might have compromised the success of the operation. The patient recovered completely, but it appears that a fistulous tract remained in the cicatrix on the cervix, and fertilisation occurred through this orifice. The lady was subject to extra-uterine pregnancy two years after the operation and died in consequence. M. Koeberlé, moreover, was not informed of this pregnancy. He learnt at the same time of the death of the patient and of the strange cause of her decease."

The seat of the fœtal sac remains a mystery. Apparently there was no necropsy, the case occurring in a private patient. This is much to be regretted, especially when the services of such able observers as MM. Koeberlé and Keller might have been obtained.

At the present moment a series of papers on ectopic pregnancy ("Ueber ectopische Schwangerschaft," 'Berliner klin. Wochenschrift,' 1893, No. 22, *et seq.*), by Dr. August Martin, are in course of publication. Dr. Martin believes that abdominal pregnancy is often the result of detachment of the ovum from the fimbriæ, especially from the ovarian fimbria. Ovarian pregnancy may often, he thinks, be explained in the same way, but he is inclined to admit a primary form.†

* P. 271. This passage is entirely omitted in the second edition of the 'Lehrbuch der Geburtshülfe' (1893), p. 266.

† See also the same authority's important communication read before the

Thus out of the best reported cases, often quoted as instances of primary abdominal pregnancy, two (Nos. 3 and 4) are not specially declared to be so in the original report, one (No. 8) proved to be interstitial or tubo-uterine, in one (No. 6) the tube opened into the fœtal sac, one (No. 7) was reported as doubtful, whilst in four (Nos. 1, 2, 5, and 9 as well as 3, 4, 6, and 7) pregnancy had passed the third month, when the original relations of the sac had become confused.

Out of the five best reported cases of "primary ovarian pregnancy," in one (No. 3), the most authentic, there was suspicion of a tubo-ovarian cyst; in the remainder pregnancy was more or less advanced, so there is the same source of fallacy as is above noted in the "abdominal" series. In fact, lithopædion occurs twice in five cases! In one of these the fimbriæ spread over the sac, a suspicious circumstance, as in No. 6 in the first series.

In the specimen exhibited to-night the proximity of the fœtus to the closed end of the tube is a very suspicious circumstance. There was no evidence of ovarian gestation; the body in the cavity inside the left ovary was simply a clot and the wall of the cavity was ovarian tissue, $\frac{1}{8}$ inch thick, without any cicatrix or other sign of rupture.

The fœtus probably died in the ostium, and was shed into the adjacent peritoneum, which did not develop any suitable nidus to receive it. The tube afterwards closed, and all trace of the membranes was lost. The abnormal pregnancy probably occurred many years before the patient's death.

When some observer can demonstrate to us a specimen where a fœtus as minute as that which I now exhibit, but recent and entire, is to be seen lodged in a true gestation-sac inside the ovary or on the peritoneum away from the tube, then we shall begin to believe in primary ovarian and abdominal gestation.

Obstetrical Society of Berlin in May, 1893 ('Centralblatt f. Gynäk.,' No. 22, 1893, p. 512). He speaks of five cases of pregnancy in tubo-ovarian cysts; in four the ovum lay in the tube, in one it apparently lay in the ovary.

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FIBRO-MYOMA OF THE BROAD LIGAMENT.

By M. Handfield-Jones, M.D.

This specimen was removed from a patient aged 51. The menopause had taken place three years previously. For the last six months great increase had been noted in the size of the tumour, and ascitic fluid had formed

rapidly. At the operation eight pints of the latter were evacuated before the tumour was removed. The patient had made an easy and perfect recovery. It was unusual to find such a rapid outpouring of ascitic fluid in connection with a simple fibro-myoma.

PHOSPHATIC CALCULUS AND BODKIN NUCLEUS.

By Amand Routh, M.D.

Weight 5 oz. Nucleus, bodkin. Removed by vaginal cystotomy.

Woman, aged 48, had passed bodkin when twenty-three years of age. Ill-health last few years with frequent painful micturition. Last six months rigors, constant pelvic pain, and emaciation. Bladder found distended by rough calculus, size and shape of hen's egg. Much chronic cystitis present, and marked induration at base of bladder and anterior parametric space.

Vaginal cystotomy performed, stone crushed through the opening, and bladder irrigated through urethra. Phosphatic incrustation picked off base of bladder, leading to free hæmorrhage. Wound left patent for drainage.

Sharp inflammatory reaction on third day, probably septic, temperature rising to 105°, but she recovered under salol and iron, and the wound had now quite healed.

ANENCEPHALIC FŒTUS.

By Amand Routh, M.D.

A Committee, consisting of Dr. Amand Routh, Dr. Herbert R. Spencer, and Dr. Giles, was appointed to report on this specimen.

PLACENTA PRÆVIA.

By W. Rivers Pollock, M.B.

Mrs. S—, aged 34; had seven living children.

Seventh pregnancy.—Complicated by dermoid cyst of ovary successfully removed in fourth month, went on to full term. Placenta adherent, was removed one and a half hours after delivery. Living child born.

Eighth pregnancy.—Much troubled with pain whilst carrying; latterly pain worse, especially in cervical region. Waters broke about 6 p.m., June 4th, whilst getting off sofa; slight hæmorrhage. 7.30 p.m., examined *per abdomen;* child in L. O. A. position; fœtal heart heard. Examined *per vaginam;* rather severe hæmorrhage started, so child's leg was seized and drawn through placenta, which was centrally situated; the child was delivered in about twenty minutes, dead. Some hæmorrhage occurred after delivery. Had no hæmorrhage from vagina during pregnancy, but frequently from piles. Patient did well.

THE LONGINGS OF PREGNANT WOMEN.

By Arthur Giles, M.D., B.Sc.Lond., M.R.C.P.

(Received January 31st, 1893.)

(*Abstract.*)

"Longings" fall into two ancient divisions according as the objects longed for are—(1) Natural and healthy; (2) Unnatural or unhealthy.

The former class is here alone considered, the data being based on particulars of 300 cases.

The popular view of longings is stated, and the principal foods longed for are tabulated, to ascertain the relation between sickness and longings in general, and various classes of foods in particular (Table I).

Three explanations of the cause of longings:

1. That they are due to a desire for something to check the feeling of nausea. This applies especially to sour things.

2. That they are the expression of an instinctive want for some class of food in the altered condition of pregnancy.

3. The author thinks that in many cases they are due to a kind of auto-suggestion prompted by a popular tradition, and gives evidence in support of this view.

Table II shows that the frequency of longings markedly decreases as parity increases.

The subject is important from the point of view of the feeding of infants.

From ancient times it has been known that pregnant women are liable to be possessed of capricious "longings" for articles of food. Such longings fall into two natural and long-recognised divisions, according as the object

desired is on the one hand natural and healthy; or on the other hand unnatural, indigestible, or revolting.

Patients of the latter class are frequently hysterical, or show other signs of increase of the already high nervous tension found normally in pregnancy, and the longing may be regarded as pathological. When longings are referred to in text-books it is almost always this kind of longing that is described; and even this is often dismissed in a few words. I do not propose to consider this variety in the present paper, as I have nothing new to contribute.

Knowing that longings of the first class—an exaggerated desire for some proper food—are common, I desired to ascertain if they rest on any scientific basis. For this purpose I have analysed 300 cases in which I obtained particulars from patients in the General Lying-in Hospital, Lambeth.

The popular interpretation of these longings is as follows:—It is supposed that a "longing" or "craving" expresses a need, on the part of the child, for that particular kind of food; and if the longing be not gratified it is supposed that the child will be marked at birth with the article withheld. If no mark be found in such case, any fretfulness on the child's part is regarded as an indication that the longing has "fallen on the child;" and the current belief is that the child will not be satisfied till it be fed with the object of its longing.

Parvin* mentions this as a "once popular belief;" that it is still popular will be evident from the following instances met with among my cases.

(1) Mrs. A— states that during her fourth pregnancy she longed for baked potatoes, but did not indulge in them. The child at birth had an oval dark mark on the calf of the left leg "very like a kidney potato, even to the eye." The mark has grown darker since.

(2) Mrs. B—, in her first pregnancy, having refrained from indulging in some winkles and strawberries that she

* 'Science and Art of Obstetrics,' p. 155.

longed for, "marked the child with a winkle on the forehead, and with a strawberry on the back of the neck." These were both red circular marks about the size of a sixpenny piece.

(3) Mrs. C— similarly "marked the baby" with a tomato and an apple.

(4) Mrs. D—, in the same way, had a baby born with a lobster mark on the back of the neck.

(5) Mrs. E— longed for fish in her first pregnancy, but did not have it, and "the longing fell on the child;" so when, on the third day after confinement, she had fish for dinner, she gave some to the child, and "after that he was satisfied"!!

It will be readily understood that, holding such beliefs, women will be on the *qui vive* to detect any symptoms of longing which, to them, shall express the inarticulate wishes of the child, and neglect of which may result in its disfigurement.

The particular thing longed for varies in different cases. I have drawn up the following list to show the relative frequency of various cravings.

A. *Fruit*, in 79 instances, distributed as follows:—

Apples, 34; oranges, 13; grapes, 4; lemons, 4; strawberries, 4; cherries, 4; gooseberries, 3; plums, 3; figs, 2; nuts, 1; pears, 1; pineapple, 1.

B. *Vegetables*, in 12 cases, viz.—

Tomatoes, 6; green peas, 2; cucumber, 1; mushrooms, 1; Brussels sprouts, 1; beetroot, 1.

C. *Meat and fish, &c.*, 26, viz.—

Pork, 5; rabbit, 4; goose, 1; oysters, 5; mussels, 1; salmon, 1; eels, 1; sardines, 1; crab, 1; other fish, 6.

D. *Miscellaneous*, 15, viz.—

Pickles, 2; sour things, 3; sweets and cakes, 2; eggs, 1; curry, 1; mince pies, 1; cheese, 1; starch, 1; rice, 1; beer, 2 (both cases being usually total abstainers).

Apples, it will be observed, are a favourite object of craving, several women remarking "I could have lived on them," "I was eating apples all day," "I used to sit up

in bed eating apples." Sometimes they turned against something, as sweets in one case, and fish, eggs and tea in another. On the contrary some took a fancy to an article previously disliked.

In the above list several longings of one patient are frequently specified.

It will be observed that sour or acid things form the great majority of cravings; this comes out even more clearly in Table I. This fact was already well known, and gave rise to the suggestion that patients longed for such things in order to check a feeling of sickness or nausea. But that this is not always the case is shown by several considerations.

1. Of 300 cases, 100 were quite free from sickness, and of this number 33 had longings; 200 cases suffered at some time from sickness, and of these 66 had longings, giving exactly the same percentage, namely 33. (See Table I).

TABLE I.—*Showing the Nature of Cravings in relation to Sickness.*

Nature of "cravings."		Patients sick.	Percent.	Not sick.	Total.
Apples, lemons, oranges, pickles, gooseberries, plums, tomatoes, and "sour things"	Sour things	*34*	**17**	*23*	*57*
Grapes, strawberries, figs, cherries, cakes, and "sweet things"	Sweet things	*10*	**5**	*4*	*14*
Rabbit, goose, pork, sardines, salmon, eels, and other fish; oysters, mussels, crabs	Fish and meat	*16*	**8**	*4*	*20*
Green peas, mushrooms, and other vegetables; eggs, cheese, rice, &c.	Vegetables, &c.	*6*	**3**	*2*	*8*
Total with longings		*66*	**33**	*33*	*99*
Total without longings		*134*	**67**	*67*	*201*
Total		*200*	**100**	*100*	*300*

2. The period of sickness frequently bore no relation to the time when there were cravings; in such cases the patient often had cravings when the sickness had ceased.

3. Table I shows that 23 per cent. of women free from sickness longed for sour things; and only 17 per cent. of women were troubled with sickness. On the other hand, longings for rich and indigestible things were more common among those who were sick.

Another view is that, at least in a certain number of cases, the longing is an expression of a natural instinct; the body standing in need of that particular food. This may quite well be; but instincts are not sufficiently understood physiologically for the question to be susceptible of proof.

A third explanation is that, especially among women of the working class, it is a time-honoured tradition that it is the proper thing for a pregnant woman to have longings; and that consequently women may come to feel cravings by a process of auto-suggestion, especially in their first pregnancy, when circumstances are new and strange and there is a general sense of dread of something impending.

I believe that this explanation holds in a certain number, perhaps even in the majority of cases. For the impression conveyed to me by the patients from whom I obtained these particulars, was certainly that in many cases the subject of longings was a matter of hearsay before it was a matter of experience; and that among the women themselves longings were regarded by some as the outcome of a rather foolish credulity.

This view receives support from several considerations:

1. The better-educated among the women had longings much less frequently than the others.

2. Among primiparæ, longings occur in 20 per cent. more cases among married than among single women (Table II).

3. Among married women, longings occur just twice as often during the first pregnancy as in the second, third, or

fourth; whilst there is a steady diminution of frequency of longings as parity increases, till among women with ten or more children longings are quite exceptional. I only found one in thirteen of such cases (Table II).

TABLE II.—*Showing the relative frequency of Longings in successive Pregnancies.*

	Primiparæ.				II-paræ.		III-paræ.		IV-paræ.		V–IX paræ.		X(+)-paræ.	
	Married.		Single.											
	No.	Per-cent.	No.	Per-cent.	No.	Per-cent.	No.	Per-cent.	No.	Per cent.	No.	Per-cent.	No.	Per-cent.
With longings ...	**36**	*55·4*	**10**	*35·7*	**21**	*28·3*	**11**	*27·5*	**8**	*25·8*	**11**	*22·4*	**1**	*7·7*
Without longings	**29**	*44·6*	**18**	*64·3*	**53**	*71·7*	**29**	*72·5*	**23**	*74·2*	**38**	*77·6*	**12**	*92·3*
Total = 300	**65**	*100*	**28**	*100*	**74**	*100*	**40**	*100*	**31**	*100*	**49**	*100*	**13**	*100*

And so, whilst a certain number of cases of longings are probably rightly explained on physiological grounds, I think that a certain other number are more properly regarded as due to a superstitious tradition. As far as concerns the mother's longings merely, the popular idea is no doubt harmless enough. But in view of the ignorance that prevails as to the feeding of infants, and the already too great infant mortality, it becomes important that a belief, which allows of infants a few days old being fed on pork, fish, lobsters, and even more unnatural things, should be discouraged.

I am indebted to Dr. Herman and Dr. Cullingworth for permission, kindly granted, to make use of these observations, which were made chiefly during my tenure of the post of House Physician at the General Lying-in Hospital.

Mr. ALBAN DORAN felt no doubt that longings represented a deeply-rooted popular tradition, so that countless numbers of pregnant women had, for ages, expected longings from the first and longed accordingly. In Marlowe's 'Doctor Faustus,' one of the earliest English tragedies, Faustus says to a German

Duchess, "I have heard that great-bellied women do long for some dainties or other; what is it, madam? tell me, and you shall have it." She replies, "As it is January and the dead time of the winter, I would desire no better meat than a dish of ripe grapes."* Of course the grapes are at once procured by magic. In Fielding's satire, 'The History of the Life of the Late Mr. Jonathan Wild the Great,' written to show that heroes are enemies of their species even from the womb, it is related of Wild's mother that "during her whole pregnancy she constantly longed for everything she saw; nor could she be satisfied with her wish unless she enjoyed it clandestinely; and as nature, by true and accurate observers, is remarked to give us no appetites without furnishing us with the means of gratifying them, so had she at this time a most marvellous glutinous quality attending her fingers, to which, as to bird-lime, everything closely adhered that she handled."† The tradition must have been widespread in the days of Marlowe and in the time of Fielding, else they would not have made a point of it in their writings. Its influence on the masses must therefore have been very strong.

The PRESIDENT said that Dr. Giles, in his paper, had brought a popular belief to the test of facts. The long-continued belief in the existence of these longings was evidence enough that there were such things; and the question was, are these longings merely a whim, a vagary, like a wish for a new bonnet for instance; or are they a genuine indication of a physiological need. He (the President), thought that Dr. Giles's paper showed that they might be of both kinds. On the one hand, he showed that they were much commoner in first pregnancies, and steadily diminished in frequency with the number of children the patients had previously had. This was what would be expected if they merely depended on the patient's caprice; for repeated pregnancies brought with them not only greater familiarity with the symptoms of that condition, but also household and family cares which occupied the mind. The greater frequency in married women pregnant for the first time than in single primigravidæ pointed in the same direction; for single women would naturally not wish to give their friends any hint of their condition. On the other hand, the great preponderance among the things longed for, of things containing vegetable acids, seemed to him to strongly suggest that these things must be in some way beneficial; that the longing for vegetable acids was the expression of a physiological need. Were it otherwise, it was hard to explain why the cases in which the thing longed for

* Dyce's 'Works of Christopher Marlowe,' London, Pickering, 1850, vol. ii, p. 67.

† 'Works of Henry Fielding,' Bohn, 1845, pp. 541, 542.

was some kind of acid fruit, outnumbered all the rest put together. Dr. Giles's paper gave one the impression that, although he had not discussed the question of maternal impressions, he had some faint belief in them. He (the President) would suggest that if Dr. Giles would append information as to in how many of the pregnancies in which there were longings, the child showed any mark corresponding to the longings or otherwise, valuable evidence as to the effect of maternal impressions would be given.

Dr. GILES, in reply, said that he felt indebted to Mr. Doran for his interesting references to the traditions about longings. With regard to the subject of maternal impressions, to which the President had referred,—the Fellows had probably seen a case reported in the 'British Medical Journal' of last week, by Dr. Ross, of New Brighton, in which a woman had had a great craving for apples; being in poor circumstances, her craving led to disputes with her husband about her extravagance. The child was born with a pedunculated growth, resembling an apple, on the ulnar border of the left hand. Personally, his attitude towards the subject was an open one; he was not prepared to deny the possibility of maternal impressions influencing the fœtus; but he thought mere coincidence accounted for the great majority. The term "auto-suggestion" to which some exception had been taken, he employed in the sense in which it was used in works on hypnosis; just as in "suggestion" one person influences the beliefs and feelings of another, so in auto-suggestion; a woman starting with the feeling, induced by the conversation of her neighbours, that she ought to feel certain cravings, unconsciously persuades herself till she actually experiences these cravings. He only suggested this, however, as the explanation of a certain number of the longings met with. Others had no doubt, as the President agreed, a more physiological basis.

ON THE ABSORPTION OF FIBROID TUMOURS OF THE UTERUS, WITH A REPORT OF A SUSPECTED CASE.

By Alban Doran, F.R.C.S.,
SURGEON TO THE SAMARITAN FREE HOSPITAL.

(Received March 3rd, 1893.)

(*Abstract.*)

A woman, aged 40, was admitted into hospital under the author's care on May 9th, 1890. About three years previously a lump was felt in the left iliac fossa. It never disappeared, and gave rise to dragging pains when she walked about. Thirteen weeks before admission she was seized with abdominal pains and dysuria. A fortnight before admission she fell down, receiving a heavy blow on the tumour. Severe abdominal pain and fever followed. On admission a solid, very hard mass was detected; it filled the left iliac fossa and reached upwards to the left, above the umbilical level. The os uteri lay close to the pubes; the cervix was almost absorbed in the tumour, which bulged far down in the pelvis behind the vagina. The mass was fixed. After three weeks' rest and appropriate treatment the tumour moved freely; a second lobe was detected to its right, reaching halfway to the umbilicus. On February 10th, 1891, the tumour was again examined by the author. It could just be felt above the pelvic brim to the left, and no longer extended downwards behind the cervix. A discharge of fœtid fluid occurred in August, 1890, and since then the tumour had steadily diminished in size. On November 25th, 1892, the author once more examined the patient. There was no trace of any tumour. The uterus was freely moveable; its cavity measured 3½ inches.

The author believes that this case was an instance of the absorption of a uterine fibroid before the menopause. The injury provoked inflammation, followed by impaction, then resolution of the inflammatory products and slow disappearance of the tumour. The discharge may have been due to breaking down of a submucous growth; the masses in the abdomen, however, were clearly not submucous. The body which had filled Douglas's pouch moved freely as part of the tumour, after subsidence of the inflammation, so that it could not have been an abscess or solid inflammatory deposit.

Similar cases of disappearance of fibroids in association with inflammation, congestion, or injury have been recorded by Rigby, Prieger, Playfair, von Mosetig, and Guéniot.

The author has collected 37 cases of disappearance (not always complete) of uterine fibroids. Brief histories, taken in all cases direct from the original sources, are appended, and the cases are tabulated thus:

1. Spontaneous disappearance of fibroids directly associated with pregnancy. 13 cases.

2. Spontaneous disappearance of fibroids: patients under forty-five: history indicating inflammatory complication, congestion, or injury. 6 cases.

3. Spontaneous disappearance of fibroids: patients reported as under forty-five: cases not directly associated with pregnancy, pelvic inflammation, &c. 10 cases.

4. Spontaneous disappearance of fibroids: patients over forty-five, or no age given; cases not associated with pregnancy, pelvic inflammation, &c. 8 cases.

Sources of fallacy are discussed, and the possible effects of treatment noticed. The relation of the disappearance of fibroids to the menopause is uncertain. Kleinwächter finds that these tumours do not, as a rule, cease to grow at that epoch of life.

Although any one of the cases here reported may be based on an error of diagnosis, nevertheless so many cases have been recorded by experienced authorities that there can be no doubt that fibroid uterine tumours of considerable size sometimes disappear spontaneously before the menopause.

E. A. G—, aged 40, a laundress, married twenty years, and the mother of one child (no history of abortions), was admitted under my care into the Samaritan Free Hospital on May 9th, 1890.

She informed me that seventeen years previously she had suffered from "inflammation of the bowels." Her sole confinement took place twelve years before admission. Three years ago she had another attack of "inflammation of the bowels with constipation." She kept her bed for eleven weeks, and then discovered a lump in the left iliac fossa. It never disappeared, and gave rise to dragging pains when she walked about. Thirteen weeks before admission she was seized with abdominal pains and dysuria. She placed herself under the care of Mr. Hogg and Mr. Langston Scott, of Ealing. A fortnight before admission she fell down, receiving a severe blow on the tumour. Intense abdominal pain ensued, and she had to keep her bed; morphine was given and poultices applied.

On admission I noted that the patient was a tall woman, well nourished, with an expression of pain on her face, the alæ nasi dilating, respirations rapid, and the knees drawn up.

The abdomen was tender on pressure. A solid mass filled the left iliac fossa and reached upwards to the left, above the umbilical level, scarcely extending to the right of the middle line (Fig. 1). It felt very hard, yet there was resonance on percussion all over its surface, and crepitation when the palm was pressed against the abdomen.

On pelvic exploration I found the os uteri high up close against the pubes. The cervix was almost absorbed, as it seemed, in the tumour, which bulged far down the pelvis behind the vagina. I passed a soft catheter into the os (its position and the state of the parts rendered the use of the uterine sound dangerous), and it passed upwards and backwards 2 inches. The uterus and the pelvic and abdominal mass were quite immoveable. The

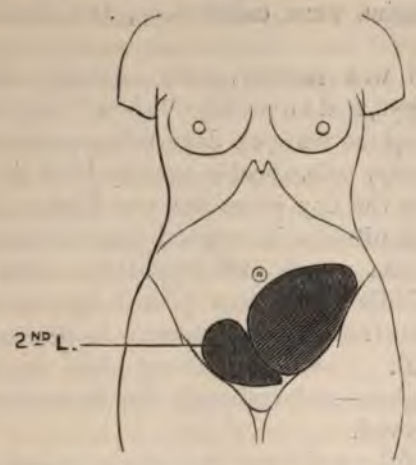

FIG. 1. THE TUMOUR.—Case of E. A. G—. 2nd L. Second lobe, not distinguishable till May 16th.

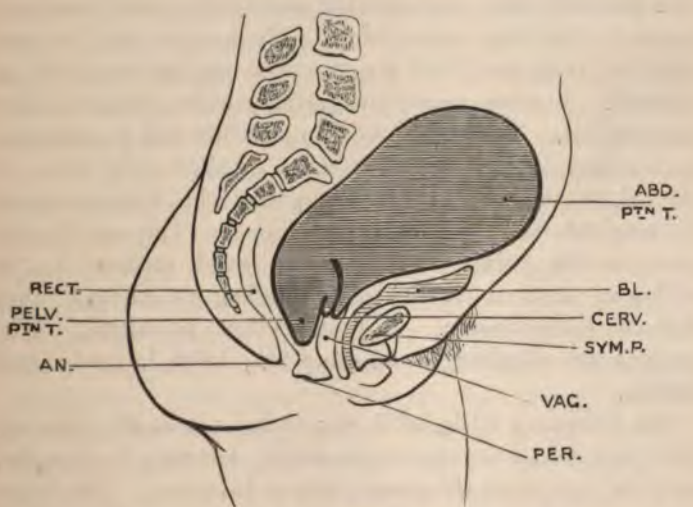

FIG. 2. PELVIC AND ABDOMINAL RELATIONS OF THE TUMOUR.—Case of E. A. G—. Abd. Ptn. T. Abdominal portion of tumour. Pelv. Ptn. T. Pelvic portion of tumour. Cerv. Cervix uteri. Bl. Bladder. Vag. Vagina. Sym. P. Symphysis pubis. Rect. Rectum. An. Anus. Per. Perinæum.

labia and vagina were œdematous, the legs free from œdema.

The period was regular, and occurred about every twenty-four days, and no profuse "show" had been noted. The last took place fourteen days before admission. The urine was scanty, pale, specific gravity 1015 (it never rose higher even to the day when she was discharged), and on boiling it with nitric acid marked opacity was developed. The tongue was rough and bright red, with white fur along the middle line. She passed mucous stools, and suffered badly from large internal hæmorrhoids. The pulse was 120. The temperature, 102° on admission, never rose higher—unfortunately the temperature record was not preserved.

After careful consideration I came to the conclusion that the symptoms and physical signs implied impaction of a uterine fibroid in the pelvis. Dr. Bantock and Mr. Meredith also explored the parts with great care, and came to the same conclusion. We agreed that the case required rest, and that no operation was at the time indicated. I gave saline purgatives, which afforded her great relief. The pulse and temperature fell to normal.

On May 16th I could detect a smaller solid mass, to the right of the larger, occupying the hypogastrium. It reached halfway to the umbilicus. The cervix, the mass in the pelvis, and the two solid masses in the abdomen now moved freely together as though they formed one tumour. No impaction remained. The patient was discharged on June 6th, 1890, in fairly good health.

On February 10th, 1891, she visited me at the hospital. The period had not appeared during her stay in hospital, and did not recur till a week before this visit. The vulva was not œdematous; there were some small, slightly tender, external piles.

On pressure over the lower part of the abdomen, the tumour could just be felt above the pelvic brim to the left. The cervix uteri lay high up in the pelvis as before,

and close to the pubes. The sound passed 2½ inches forwards ; the uterus was almost fixed. The tumour no longer extended downwards behind the vagina. It now felt like a fibroid involving the left broad ligament. The patient said that on Friday, August 1st, 1890, something suddenly burst and discharged stinking fluid. Since then the tumour seemed to disappear gradually ; the discharge had been constant but scanty, and was diminishing.

On November 25th, 1892, I saw the patient once more. There was no trace of any tumour. The cervix still lay close to the pubes, the uterine cavity measured 3½ inches and was fairly moveable. There was no tumour in the abdomen, nor in Douglas's pouch. The right fornix was free, there was some resistance in the left, but no tumour, though bimanual palpation was perfectly practicable. The patient had an ulcer in the lower third of the left leg, but was otherwise in excellent health.

Was this case an instance of the absorption of a uterine fibroid before the menopause ? I feel sure that it was so to a certain extent. The masses in the pelvis and abdomen with the uterus moved freely together after the patient had lain in bed for seven days. At the beginning everything was fixed, and there was high temperature and great tenderness. In fact, inflammation was evidently present, and as evidently subsided at the end of the week. Then, not only was the tumour moveable, but it was also much easier to define. Two months later something burst. Whether it burst into the uterus or the vagina I cannot say. It might have been a parametric abscess discharging through the upper part of the vagina, but I could not find any evidence to support this theory. The mass in Douglas's pouch moved freely with the tumour by May 16th, and so could not have been an abscess. More probably there was fibroid disease of the uterus first, then impaction and pelvic inflammation, and then breaking down of a submucous fibroid growth in the uterine wall. The bilobed abdominal tumour could not have been an intra-uterine fibroid. The history contra-indicates solid

tumour of the ovary or any other organ. After the discharge the tumour at once began to grow smaller, and within eighteen months it had disappeared altogether. The impaction and inflammation had damaged its vitality, and hence its disappearance.

At the least there was more or less fibroid disease, although some part of the mass felt at first might have been an inflammatory product. In my own opinion, the amount of actual inflammatory effusion was trifling, and the enlargement, at the time that the symptoms were acute, can be explained by œdema of the tumour. The blow had set up inflammation, and the increase in size involved impaction and œdema. I will refer to similar cases related by Drs. Playfair (16) and Prieger (15), where fibroids apparently or really underwent involution after inflammatory complications. This subject, disappearance of fibroids, is of much interest. The evidence is seldom in any sense satisfactory. The fibroid is not seen, but only diagnosed, except in Von Mosetig's (18) and in Herpin and Mayor's (2) cases, where it was seen during abdominal section.

Involution after the menopause is slow, and we all know how extreme calcareous changes sometimes develop. As this involution nearly always occurs more or less in fibroids, at the change of life,* cases of spontaneous disappearance of these tumours at an earlier age may represent a premature menopause. Cases in patients over forty-five are hardly abnormal, especially when the disappearance is slow, as in Ashwell's series (31—33). The catamenial history is very important, but too often wanting.

The most probable true cases of spontaneous disappearance of fibroids, independent of the menopause, are those where pregnancy sets up the process of involution which extends from the uterus to the tumour, more or less a myoma. In my paper on "Myoma and Fibro-myoma of the Uterus"† I noted how a fibroid shares in the

* Kleinwächter is of a different opinion, as will presently be noted.

† 'Trans. Obstet. Soc.,' vol. xxx, 1888.

hypertrophic changes affecting the uterus during pregnancy. Indeed, the muscle-cells of the fibroid grow even larger than do those in the uterine walls (loc. cit., Pl. II, fig. 3). If the process of evolution be exaggerated in the tumour, it is easy to understand how involution may be more marked in the morbid growth than in the uterus. Cornil, who recently examined a large myoma removed by M. Péan at the fourth month of pregnancy, found that the pressure of the hypertrophied fibres on each other caused atrophy. Chrobak found cystic and necrotic changes in a fibroid removed with the uterus and a six months' fœtus.*

One great difficulty in regard to research into the subject of this paper lies in the unsatisfactory nature of measurements. For not only is the tumour rarely seen in the course of an exploratory operation, for instance, but it is hard to measure. Hence in the appended tables the estimate of the size and form of the tumour, as recorded by different observers, is either based on the height to which the uterus rises above the pubes, or is given by unsatisfactory comparisons, such as "as large as a man's head," or "a child's head," "a fœtal head," "a man's fist," "a large orange," "an orange," "a walnut," or "a door-knob." "Comment is needless," as a journalist would say.

As much that is known about the spontaneous disappearance of fibroids is taken from second-hand information, and as the original observations are, in many instances, difficult of access, I intend to quote those observations as fully as possible. The record will not, I fancy, prove so tedious as would at first appear,—in fact, the clinical histories mostly err in being too short rather than too long. The facts of each case, as well as the numerous sources of fallacy, will be made apparent. In accordance with what has already been said, I will divide these thirty-seven cases into four large groups :

* The question of cystic and necrotic changes in fibroids is discussed in my paper on "Cystic Fibroids," 'Medico-Chirurgical Transactions,' vol. lxxvi, 1893.

1. Spontaneous disappearance more or less complete of fibroids directly associated with pregnancy—thirteen cases.

2. Spontaneous disappearance of fibroids in patients under forty-five, with a distinct history of inflammatory complications, congestion, injury, &c.—six cases.

3. Spontaneous disappearance of fibroids in patients reported as under forty-five, not directly associated with pregnancy, inflammation, or injury—ten cases.

4. Spontaneous disappearance of fibroids in patients reported as over forty-five, or no age given; cases not directly associated with pregnancy, inflammation, or injury —eight cases.

The four tables correspond to this classification. Group 1 is the most natural and most satisfactory; Group 2 includes the case on which this memoir is based; whilst Groups 3 and 4 include much that is matter for doubt. In some reports it is not always easy to make sure whether the age of the patient is given as at the beginning or the end of her clinical history. The youngest cases in Group 3 seem to be the most certain examples of absolutely spontaneous involution.

I. Opinions on the Disappearance of Fibroids.

I will begin with a few words on the opinions of writers who have had more or less experience of the condition under consideration. The general doctrines of great authorities may be found in their well-known and accessible treatises. On the whole, perhaps, the best summary is to be found in Dr. Barnes' text-book.

"If we can demonstrate a sensible diminution in the bulk of a tumour, and even follow the diminution on to complete disappearance, the only doubt as to the reality of absorption rests on the possibility of an error of diagnosis. The supposed tumour might have been retro-uterine hæmatocele, an enlarged body of the uterus from

hyperplasia, or some other condition. That some cases of cure by absorption, reported before the characters of retro-uterine hæmatocele were known, were falsely interpreted is highly probable. But the reality of fibroid tumours having been absorbed is too well established to admit of doubt."

Dr. Meadows is quoted in some text-books as a practical authority on the subject, but he merely states that cases of disappearance of fibroids have occurred in his experience, without adding any clinical report. Dr. C. H. F. Routh, in 1863, turned attention to the tendencies of fibroids to diminish and afterwards increase. The cases of disappearance under his own observation will be described.

Dr. Playfair, in a communication to these 'Transactions,' the name of which I have purposely repeated at the heading of the present memoir, is careful to distinguish between cases of disappearance of fibroids before the menopause and cases where fibroids have disappeared at or about that period of a woman's life.

Dr. McClintock believed in the spontaneous destruction of fibroids enclosed in the uterine tissue (as separate from polypi). "It seems a thing not impossible for tumours having apparently all the characters of the kind we have been considering" (that is, uterine fibroids) "to be removed by a process of atrophy or absorption. . . . No example has come under my own observation." Sir Charles Clarke's case, which he quotes, was clearly an example of breaking down and discharge of the débris of a submucous fibroid through the vagina. At the beginning of the history the tumour "was found descending into the vagina from the cavity of the uterus." The patient died, "worn out by pain and discharge." At the necropsy, "upon the anterior part of it" (the uterus) "near the fundus were found two small tumours as large as peas, which were probably the same tumours before felt of the size above mentioned" ("one the size of a man's fist, the other twice this size"), "as there was no

other vestige of them." The "probability" is strong in this case.

Pozzi classes cases of alleged disappearance of uterine fibroids under "softening." He observes that the tumours increase together with the uterus in pregnancy, and that they grow softer after delivery, "by a process which has been attributed, on somewhat hypothetical grounds, to fatty degeneration." In a work published nearly twenty years ago, and occasionally quoted second-hand, he introduces Guéniot's cases, which will here be related direct from the original source. He adds the three following cases, which are of little value, as it is only implied that spontaneous cure occurred. I give them below as a warning to all who would rely on second-hand and imperfect information. M. Pozzi does not include them in his standard work.

(1) Spontaneous cure ("aucun traitement chirurgical"), case of profound anæmia with large and multiple interstitial fibroids, menorrhagia. A year after observation the floodings had ceased and the patient was well. "No information as to the local condition."

(2) A "sister" refused vaginal examination. Severe menorrhagia. A hard tumour, rising several fingers' breadth above the pubes, bearing all the characters of a fibroid. No surgical treatment. Recovery. No fresh local examination.

(3) Menorrhagia after operation for a fibrous tumour projecting from the cervix. An interstitial fibroid developed. Floodings ceased. The tumour remained "half as big as an adult's head," but no note is made of its size before the floodings ceased. Patient's health perfect.

Courty writes, "As to the natural reabsorption of the tumour, though it must never be absolutely counted upon, such remarkable examples are known (I myself have seen very authentic cases) of satisfactory modifications and of cure by well-directed medication, that we must not hesitate to prescribe all methods of which the action, as a resolvent, is incontestable."

Professor Schroeder states that there can be "no doubt that the recession and even the complete disappearance of these growths is observed." He admits that the diagnosis "may appear a little doubtful" in some of the many recorded cases, but in the majority the correctness of diagnosis is "beyond question."

Gusserow, a very high authority on all things connected with fibroids, speaks of the process of disappearance as mere atrophy, fatty degeneration of the muscular elements, and shrivelling of the connective tissue; in fact, a kind of cirrhosis. He significantly adds that it is well known that many observations on the disappearance of fibroids are unreliable.

Carl Schorler has written in a truly scientific spirit on uterine fibroids, and in association with the subject of this communication we may note how he has collected series of cases improved by ergot, and others not improved by the use of that drug. In the "improvement" series we find that the majority of patients were over forty-five. Hence the coincidence of climacteric changes must be remembered, as these changes may claim the chief share in cure.

De Sinéty's opinion on the subject deserves notice, not only because he is a high authority on uterine pathology, and wrote the opinion to which I refer as recently as 1886, but also because he expresses it in an article in the well-known colossal standard medical dictionary as popular in this country as in France. French writers are known to be very industrious in hunting up original records and digesting the results in summaries. De Sinéty writes, "Cases of spontaneous disappearance of fibroids are at the present day fairly numerous in the annals of science. This reabsorption is effected by different processes. Pregnancy and the menopause appear to exercise an influence on these retrograde phenomena, although they have also been observed in nulliparous women and during the most active period of sexual life; sometimes fibroids undergo fatty degeneration."

De Sinéty is, we must note, rather vague as to the

spontaneous disappearance of fibroids independent of pregnancy and the menopause. He confines himself to saying that cases "have also been observed." Further on he writes about rare cases of softening and discharge of the tumour without suppuration or gangrene. Here it is particularly noteworthy that whilst he says not a word about personal experience of spontaneous disappearance of fibroids, he now goes out of his way to describe a case of cure by spontaneous elimination.

"We have observed a case of this kind, where a fibroid tumour was eliminated piecemeal, in shreds so much resembling fœtal membranes that they had been diagnosed anatomically as such. Histological examination showed that these membranous products, spontaneously expelled and followed by a fœtid discharge resembling the lochia, represented a fibro-myoma. A few years later this patient became pregnant, aborted, and expelled at the same time fresh pieces of the tumour, mixed with placental relics."

The fœtid discharge occurred in my case.

The most recent clinical work on the changes observed in fibroids was published in the beginning of 1893 by Professor Kleinwächter of Czernowitz, already known as an investigator into the pathogenesis of myoma. He records forty fairly long histories of uterine fibroids under his own observation. He finds that it is quite exceptional for a fibroid to diminish or even remain quite stationary before the menopause. He also maintains that it is likewise exceptional for fibroids to grow less after the menopause. Only one out of his forty seem to have grown less when the catamenia disappeared. But the clinical histories of the series date from 1884 or later; hence few, if any, "change of life cases" have been watched for a sufficiently long period. There remains time for many to diminish. When experienced observers say that fibroids grow less after the menopause, they do not necessarily mean immediately after. Professor Kleinwächter's three cases of disappearance of fibroids will be related.

At the onset, I must point out that in many of these cases the " disappearance " is by no means complete.

II. Cases as reported.

1. *Spontaneous Disappearance of Fibroids directly associated with Pregnancy.*

(1) Scanzoni's case of resolution of a fibroid during post-partum involution of the uterus has been widely quoted. His own words are, " We, for example, observed a fibroid of about the size of a man's head, and thoroughly diagnosed, disappear so completely during the puerperium that six weeks after delivery not a trace was to be found of the tumour which had existed for eleven years."

Gusserow shows that the slow or quick growth of a fibroid depends on the prevalence of fibrous or of muscular tissue. This point is hard to determine clinically, but a purely myomatous tumour must vary in size more than a fibro-myoma, and is assuredly more likely to be influenced by gestation and involution.

(2) Herpin witnessed a Cæsarean section performed by Mayor of Geneva, who, he notes, was the first to apply auscultation to the diagnosis of pregnancy. The patient had already borne two children. A solid but not bony pelvic tumour had been detected at the seventh month. " Labour pains set in at term. Cæsarean section was performed, the result being fortunate for mother and child ; the tumour itself ultimately disappeared." It is unfortunate that no note could be made of the appearance of the tumour as seen or felt at the operation, though, no doubt, the operator rightly avoided disturbing the parts as much as possible.

(3) A patient under Pozzi's care became pregnant when undergoing treatment for a large fibroid at a watering-place. The tumour grew to double its size previous to gestation. Delivery occurred without any complication,

and the fibroid afterwards disappeared without leaving a trace behind. M. Pozzi adds that Gusserow has rightly pointed out that fatty degeneration of fibroids has never been proved microscopically, excepting in Freund and Martin's two cases, where the tumours did not diminish in size.

(4) Dr. Kidd, of Dublin, speaks of a case where a student, after delivering a woman (age not stated), mistook a fibroid for a twin. Dr. Kidd was called in and discovered a "large fibrous tumour." Two months afterwards he found that the uterus had gone back to its normal size. The tumour was, he states, "intra-uterine;" it must have been, in fact, more or less submucous.

(5) Dr. Sedgwick was called in to a woman aged 30, suffering from retroversion of the gravid uterus in the second month; there was a fibrous tumour in the posterior wall. Abortion followed. Within a year she again became pregnant, and suffered from uncontrollable vomiting. The uterus was easily examined through the very thin parietes of the emaciated patient; in its front wall were four fibrous tumours, each as big as a walnut, and towards the middle of the posterior wall another of the same size. She was delivered at term. In her next, as well as in subsequent pregnancies, Dr. Sedgwick repeatedly explored her, but could find no trace of the fibroids. The abdominal walls remained thin.

(6) Professor A. R. Simpson describes a typical case of involution of a uterine fibroid after labour, which he traced in conjunction with Dr. James Young. The third stage of labour was "troublesome;" next day the fundus was an inch or two below the level of the umbilicus. A large, firm, equable mass could be easily manipulated through the relaxed abdominal wall, growing from the upper part of the anterior wall of the uterus, and reaching the size of a child's head in the right hypochondrium. This large fibroid mass became greatly reduced in size during the puerperal week, and when the patient passed from under Dr. Young's observation it had diminished to

the size of a hen's egg, and was lodged within the pelvic cavity.

(7) Professor Simpson reports a second case of involution of a fibroid after pregnancy in his own practice. However, during gestation it only "felt as if of the size of a walnut" through the abdominal walls. It disappeared within two months. Eight months later Professor Simpson found her in the fifth or sixth month of her second pregnancy. "The outline of the uterus was smooth; the tumour had melted completely away, and had never been reproduced." He admits that "there is more room for discussion as to whether such a process occurs in them (fibroids) under other circumstances"—outside pregnancy. He contents himself with seeing no reason to doubt that a fibroid may be disintegrated, without subsequent expulsion through the genital canal, in non-pregnant subjects, but he does not put forward any clinical evidence.

Dr. Emmet's three cases of disappearance of a fibroid in the anterior wall during pregnancy are classical; they are quoted, for example, in the third French edition of Courty's treatise, 'Maladies de l'Utérus,' p. 1111. It is significant, showing how little trust can be placed in the very best text-books as regards questions of detail and any second-hand information, that the important subject here quoted is relegated by Courty to a foot-note, and that no mention is made of the size of the absorbed fibroids. On reference to the original work I find that in Emmet's first case (8) the fibroid, during the third month of pregnancy, was "as prominent and well defined as a door-knob would be when in the grasp of the hand." In the second (9) the size of the fibroid is not even indicated. In the third (10) "the tumour was much smaller than in either of the other cases, but the fact was as well settled in my mind as to its disappearance during her pregnancy."

(11) Dr. Madge read a paper before this Society over eleven years ago, where he very carefully observed the growth of a cluster of fibroids, varying in size from that of a walnut to a large orange, on the uterus of a pregnant

woman, who, it must be noted, was forty years old. Six months after delivery three of the smaller outgrowths had disappeared. Sixteen months after, the uterus with the largest fibroid was still easily felt above the pubes, two of the smaller tumours were distinctly made out. Of the rest of the large cluster observed during pregnancy, and until three months after labour, only traces remained, one such trace being about the size of a bean.

(12) Quite recently the 'Transactions' have been enriched by Dr. John Phillips's case where a woman was delivered, when thirty-six, by craniotomy, in consequence of a large fibroid in the anterior wall blocking up the pelvis. This tumour was of the size of a cocoa-nut. A year later the patient was again confined, and died from post-partum hæmorrhage. The placenta was adherent over the site of the previously existing fibroid, the uterine wall was much thickened in that position, but no further trace of the tumour could be discovered. There was a small intra-mural fibroid in the posterior uterine wall. The uterus was exhibited before the Society.

(13) Kleinwächter, a most accurate contemporary observer, has recorded a good example of involution of a fibroid after pregnancy. The patient, aged 32, was in the fifth month of her fifth pregnancy in April, 1888. A hard, crescentic, pedunculated tumour, "the size of half a fist," stood out in relief from the right side of the gravid uterus. A month later it was larger. The patient was safely delivered. In June, 1890, the tumour had disappeared. The uterus was a little above the normal size. Menstruation was normal.

In No. 21, Class 3, pregnancy occurred after the fibroid had begun to diminish conspicuously. In No. 19, Class 2, the tumour apparently did not diminish till about a year after delivery.

2. *Spontaneous Disappearance of Fibroids; Patients under Forty-five; History indicating Inflammatory Complication; Congestion; Injury, &c.*

(14) Dr. Rigby had a case under observation in St. Bartholomew's Hospital. "Two large masses, having all the characters of fibrous tumour, could be felt through the abdominal parietes, the one immediately behind and above the symphysis pubis, and evidently arising from or seated in the uterus; the other above it, and extending nearly or up to the umbilicus. She was suffering severely from an attack of pelvic inflammation, with great excitement of the circulation; six leeches were applied *per vaginam* to the most painful spot, and a profuse hæmorrhage followed, which could not be stopped until she had lost a large quantity of blood; the flushed face had become pale, the hard throbbing pulse soft and feeble. In a week the lower tumour had evidently become softer and smaller, and in the course of a month could be no longer felt. The other one had also undergone similar changes, but in less degree; and in about six or eight weeks more disappeared also."

(15) Dr. Prieger, who naturally desired to demonstrate the excellences of Kreuznach, dwelt (loc. cit., p. 187) on his Case 5, Mrs. I—, from the north of England. She had a fibroid which formed an enormous mass closely connected with the uterus, and appeared as though in the last month of pregnancy. After a course of baths at Kreuznach it was found that the expected process of absorption had taken place, so that the mass was reduced to several growths, easily distinguishable on deep pressure with the fingers on the abdomen, and separately connected with the uterus. They were only united to each other by band-like structures—evidently adhesions. This observation suggests the previous disappearance of old inflammatory products, very possibly as the result of treatment at Kreuznach. The full history (loc. cit., p. 244) of the case confirms this suggestion. Dr. Prieger first saw the

patient (a married childless lady, "who had reached climacteric years," p. 248) in the spring of 1847. From the uterus sprang a mass "of the size of a big man's head." It completely filled the true pelvis, and reached upwards higher than the umbilicus. It formed a compact mass, not uniform in hardness, and bearing on its surface several deep grooves or depressions. The hardness was considerable, so that the substance of the tumour only yielded to the touch at a few points which were mostly in the neighbourhood of the grooves. The patient made out that the tumour had doubled its previous size within the last three months before Dr. Prieger examined her. She came under his treatment at Kreuznach, and was subjected to a course of baths and systematic alkaline fomentations. The tumour soon became softer. In July, 1847, he found that it was no longer uniform, but multiple, and in a few months the individual fibroids became smaller, and ligamentous bands ran between them. An attack of flooding and fever occurred in August, and subsided after rest. On returning to England the patient found that the tumour grew bigger again, so she returned to Kreuznach in the season of 1848. The tumour once more diminished in size, some of the smaller and softer outgrowths disappeared completely. In 1849 she underwent a third course of treatment at Kreuznach, and the tumour became so small that Dr. Prieger wrote and informed her English medical adviser that further diminution could hardly be expected. The period ceased in 1850. In 1851 the patient paid her last visit to Kreuznach, as the tumour had slightly increased in size. It grew smaller again, and after that date seems to have remained quiescent until the case was reported two years later.

In fact, this was, in all probability, a case of multiple fibroid tumours, welded together by adhesions which converted them into a single large tumour. Rest, baths, and fomentations caused the resolution of most of the adhesions, and the separate fibroid outgrowths grew smaller, owing in part, perhaps, to the influence of the climacteric.

(16) Dr. Playfair relates a case of very high interest, as it demonstrates the dangers of the sound, even in skilled hands; and it also resembles, in two essential points, the case in my own experience, for the fibroid became fixed and disappeared after inflammatory complications. The patient was thirty-five, and subject to metrorrhagia. In February, 1867, the cavity of the pelvis was found to be occupied by a large nodular mass of uterine fibroid, principally attached to the right side of the uterus, but also occupying Douglas's space, which could be felt through the abdomen, and was apparently about the size of an adult head. The uterus itself was pushed up behind the symphysis pubis. Shortly afterwards an attempt to pass the sound proved a failure, as the tumour projected so much into the uterine cavity. An acute attack of pelvic inflammation followed. The uterus and its growths became fixed, and so much exudation was thrown out that the nodules on the mass could no longer be distinguished. After the patient had remained in hospital for a month about half a pint of pus was discharged from the vagina. Twelve days later the patient was discharged. The site of exit of the pus could not be detected. "The tumours were in much the same condition as formerly." In January, 1868, Dr. Playfair again examined her. "The uterus was then in its natural position in the pelvis, and freely moveable. No trace of the fibroid tumours could be felt, and the only unnatural condition I could make out was an indefinite sense of thickening in the right broad ligament."

(17) My own case comes under a similar category. As in Dr. Playfair's, there was a nodular mass bearing all the characters of a fibroid, and pelvic inflammation occurred, followed first by discharge, and then by disappearance of the fibroid.

(18) Professor von Mosetig read before a Vienna society in October, 1888, an account of a case where the pelvis of a patient was blocked by a lobulated tumour "as large as a man's head," which reached upwards as far as two

fingers' breadth below the umbilicus. The patient began to suffer in February, 1888, from the usual pressure symptoms, and metrorrhagia which went on for three months. The cervix was not high in the pelvis, but was compressed antero-posteriorly. The tumour was quite fixed. On October 7th von Mosetig performed an exploratory operation. The tumour could not be moved, and its surface on exposure and manipulation became deeply congested, ecchymosis appearing at several points. He expressed no doubt in his report that the tumour was a fibroid. The wound was closed. Very soon all discomfort passed away. On examining the patient on the fourteenth day von Mosetig "could hardly believe his own eyes." The tumour had diminished by more than one-half. Douglas's pouch, previously filled by a firm mass, was now free. Eight days later the tumour was yet smaller, "scarcely as large as a man's fist." He attributes the phenomenon to the hyperæmia observed during the operation. It caused the tumour to diminish, just as similar uterine fibroids grow smaller during erysipelas. He has even known a soft sarcoma to diminish in the course of the same disease, through changes induced by hyperæmia.

(19) Dr. Guéniot's case was first seen in March, 1868. She was then forty years old and seven months pregnant, and further afflicted with a huge fibroid, as well as several smaller outgrowths, which could be felt through the abdominal walls on the anterior surface of the uterus. The tumour itself almost filled the pelvic cavity, pushing the cervix forwards and flattening the rectum. Owing to the pregnancy its upper limits could not be determined. Dr. Jarjavay had examined the case a year before; the tumour was then "as big as a child's head, and as hard as marble." At the eighth month the pelvis was so blocked that it was determined to perform Cæsarean section at term if the fibroid did not rise out of the pelvis. Fortunately this is just what occurred on May 17th, after labour pains had been for two hours in progress, and a quantity of liquor amnii had escaped. The tumour rose slowly,

but it was not till sixteen hours after the beginning of labour that it came to lie entirely above the pelvic inlet. The fœtal head was then able to occupy its right place in the pelvis, and was delivered four hours later. The patient suffered afterwards from chronic urticaria, dysuria, painful micturition, and occasional menorrhagia. The fibroid seemed to remain stationary, then she was seized with dull pains and *malaise* for a month. Great relief followed, and in June, 1869, she told Dr. Guéniot that she had never felt so well for ten years. He examined, but found that the tumour had but little diminished in size. The smaller outgrowths lay on the front of the uterus, the largest being as big as a hen's egg. The fundus reached four inches above the pubes. Eight months later the patient's health again failed, flooding set in, and Dr. Guéniot found that the tumour had become softer. Violent labour-like pains were observed in September, 1870. On November 2nd Dr. Guéniot found that the cervix was effaced as in my case, its posterior lip being, as it were, absorbed by the tumour. The anterior lip was recognised as a slight elevation; on touch, sharp neuralgic pains were set up. By December 27th the body of the uterus was found much smaller, the fundus and the smaller fibroids hardly rose above the pubes. The pelvic cavity was almost free, as the large tumour had diminished in size by over one-half. There was no history of the discharge of any solid or fluid by the vagina, rectum, or bladder. (In August, 1890, No. 17 discharged.) But during the whole of December the patient was feverish, the rise of temperature being distinctly intermittent at first, but soon becoming constant. Dr. Guéniot speaks of this condition as "true reabsorption fever." At the same time she was very weak and grew emaciated, keeping to her bed. Yet she had never been so easy as to defæcation and micturition since her illness. A course of quinine and arsenic was tried, but set up gastritis and stomatitis. On January 6th a diet of cold broth was

prescribed, and it answered well, for at the end of ten days the patient was convalescent.

On September 4th, 1871, Dr. Guéniot again examined the patient. The body of the uterus was anteverted and about one-third larger than usual. The fundus could be felt level with the pubes on bimanual palpation. A firm tuberosity was detected on its anterior surface. The vaginal fornices were quite free; not a trace of the large tumour could be detected. His last report is dated December 27th, 1871. The condition remained as in September. The period was somewhat irregular, often appearing at short intervals, with discharge of small clots. The patient, then forty-three years old, bore fatigue well and felt quite strong.

3. *Spontaneous Disappearance of Fibroids; Patients reported as under Forty-five; Cases not directly associated with Pregnancy, Pelvic Inflammation, &c.*

(20) Dr. Playfair describes a case where the patient was only twenty-two. She had borne three children and was subject to epilepsy. In November, 1865, Dr. Playfair detected a firm globular fibroid tumour, the size of a large orange, attached behind and to the right side of the uterus. There was menorrhagia. She was kept for six months under the influence of bromide of potassium, and the fits disappeared for a time. In July, 1866, Dr. Playfair again examined her. "The most careful and prolonged examination failed to enable me to detect any trace of the tumour which had formerly been so frequently felt."

(21) In a case described by Dr. McClintock the patient was twenty-eight, four years married, and never pregnant. The uterus formed a tumour above the pubes of the size of an orange, hard and tender. After a three months' course of chloride of calcium given with tincture of perchloride of iron, she left hospital in February, 1858, with the tumour much reduced in size. Dr. McClintock did not see her again till June, 1861, when no trace of the

tumour remained. She had become pregnant in January, 1860, and gave birth to a dead child at the end of the eighth month. The pregnancy, no doubt, played some part in effecting the complete disappearance of the tumour.

(22) M. Béhier describes a case where a large fibroid tumour disappeared within three months. The patient was a laundress, aged twenty-nine. Thirteen months before admission into hospital dysmenorrhœa and menorrhagia set in; she had recently been confined. She then noticed a small tumour in the hypogastrium. Shortly before admission severe flooding occurred during a period, and the tumour suddenly became much larger. M. Béhier found the lower part of the abdomen filled by a solid firm tumour, with a perfectly smooth surface. It was 8½ inches broad and 7 inches in vertical measurement. The lateral fornices were effaced, and all movements of the uterus in the pelvis were communicated to the abdominal tumour. No special treatment was adopted, but the pain and flooding were treated "by appropriate means." There was no rise of temperature. The tumour steadily and rapidly diminished in size, the patient remaining in hospital under careful observation. Three months after admission M. Béhier found that it had totally disappeared. The cure, he insisted, was quite spontaneous. The distinct history of menorrhagia tends to confirm the diagnosis of fibroid. Dr. Guéniot publishes this case.

(23) Courty publishes the case of a barren women aged thirty, subject for long to uterine congestions and floodings. An interstitial tumour in the anterior uterine wall was clearly defined. After being treated for several months with steel, ergot, and other means she got better. A year after his last visit Dr. Courty saw her again. The uterus had so much diminished that hardly any trace remained of the swelling, once so marked, which he had detected in its anterior segment.

M. Courty says nothing whatever about the size of the fibroid in the anterior wall when he first saw it. The

paragraph on this case is not included in Dr. Agnes McClaren's translation of the same (third) edition of M. Courty's work. (See p. 667, translation.)

(24) Hildebrandt, in a memoir on the effects of subcutaneous injections of ergot, includes a case where the patient was thirty-three and the uterus the seat of a large fibroid, so that that organ was of the size normally attained at the twenty-eighth week of pregnancy. After fifteen weeks' treatment the uterus, easily explored by bimanual palpation, was no larger than in a healthy non-pregnant multipara, and its cavity was of the normal length. In his other successful cases the diminution was much less. The direct or indirect part played by the ergot cannot be discussed.

(25) Dr. C. H. F. Routh, in his 'Lettsomian Lectures,' says that he has met with at least two distinct cases of large fibroid which, he would say, filled the pelvis, and materially interfered with the functions in that cavity, where the tumours had gradually diminished to the size of small apples. In one case the patient was about thirty-five, with menorrhagia. Dr. Routh informed me of her age in a private letter, and added that she is now (March, 1893) living, aged about sixty-five. The tumour has disappeared.

(26) Kleinwächter, in his series of forty fibroids where the history was carefully watched, includes one case where the patient was thirty-seven in March, 1884, and subject to severe hæmorrhages. The uterus was hard and irregular in outline. Its right horn extended to two fingers' breadth below the umbilicus. Ergotine was given. In January, 1885, the uterus was smaller, the metrorrhagia had ceased. In June, 1886, the uterus was not over the size of a fist. Menstruation was regular.

(27) M. Depaul once examined a woman about thirty-eight years old, subject to great anæmia from flooding. A fibroid as big as a man's fist could be felt in the anterior wall of the uterus. She underwent a hydropathic course of treatment. Eight months after M. Depaul first examined

her, he again explored the pelvis. The tumour had entirely disappeared. She had not borne children for many years. This case was originally published by Dr. Guéniot.

(28) One case of Dr. Ashwell's will find place here, the remaining will be found in the next series. Dr. Playfair shows that Dr. Ashwell cannot be correct in attributing the disappearance of the tumours to the prolonged use of iodine alone, since apparently all four patients were over thirty-nine and two were forty-eight.

Dr. Ashwell, in November, 1840, first saw this case. She was forty years old, and two months previously had discovered an enlargement in the hypogastric region, which was tender, but not very painful. It became larger, and as there was much pain she was examined. "*A tumour of considerable induration* [the italics are Dr. Ashwell's] was discovered. It had risen three or four inches towards the umbilicus, and although it passed a little to the right of the mesian (*sic*) line of the body, by far the larger portion was in the left hypogastric region. The cervix uteri was swollen, patulous, and indurated in several spots." Iodine and iron were given and leeches applied on alternate mornings to the tumour. "The morbid enlargement, by the end of February, did not exceed the bulk of a large Seville orange; it having in November equalled in size a fœtal cranium at the full period of gestation." By August, 1841, the tumour had "sunk quite within the pelvic cavity," and "the cervix was much more healthy. In 1845, and subsequently in 1851, I was informed that not a vestige of the tumour remained." No doubt this tumour greatly diminished, but it is not stated who gave the information that not a vestige remained at the end of five years, when the patient was forty-five.

(29) In Dr. C. H. F. Routh's second case (see Case 25) the patient, aged forty, was matron at a charitable institution, and Dr. Routh informs me that she she was "very regular, with abundance." The diminution took about two years.

4. *Spontaneous Disappearance of Fibroids; Patients reported as over Forty-five, or no Age given; cases not associated with Pregnancy, Pelvic Inflammation, &c.*

(30) Kleinwächter records a second case of marked diminution, though not actual disappearance of these tumours, independent of pregnancy. The patient, first examined in July, 1884, was forty-five years old, and suffered from menorrhagia. The fundus reached to within two fingers' breadth of the umbilicus. Ergotine was given. Ten months later the tumour was a little smaller. Menstruation ceased in 1889. In February, 1891, the tumour was hardly "half the size of a fist." This case will not surprise many British observers, yet Professor Kleinwächter believes that fibroids do not, as a rule, grow smaller at the menopause. The first case has already been noted; it occurred before climacteric years.

The three remaining cases reported by Dr. Ashwell (see No. 28) may be placed here.

(31) The patient was forty-six. She "had a tumour on the left side of the abdomen, occupying the space between the umbilicus, the anterior superior spinous process of the ilium, and the symphysis pubis. It was *hard*" (italics in original), "not very painful to the touch, and about the size of the fœtal head. The os and cervix uteri presented no abnormal indications. The tumour could be balanced by the fingers placed on the cervix, and when pressure was made upwards the tumour was distinctly elevated and protruded the abdominal integuments, so much as to render its outline distinctly visible. External pressure above and around the growth forced down the whole uterus much lower in the cavity of the pelvis, and left no doubt that the tumour was really uterine." Menstruation was profuse, and severe hæmorrhages frequently occurred between the periods. The iodine treatment was sedulously employed for nearly two years. "At this period the tumour was not diminished in size, and but little in hardness." The patient was sent to the south coast of Devonshire. The

tumour and bleedings began to subside within a few months. "On careful examination, now five years from its first recognition, I could discover no traces of the tumour." The patient was then fifty; it is not stated that the menopause had arrived. The case is noted as "communicated by Mr. Richard Wedd, of Cheshunt." It is not clear whether the personal pronouns in the above quotation refer to Dr. Ashwell or to Mr. Wedd.

(32) The patient was aged forty-eight; "first perceived a tumour about the size of a small melon three years ago. It was then low down in the hypogastric region." Menstruation became profuse, and there were hæmorrhages between the periods. "Now the tumour is as large as a moderate-sized adult head, lobulated, and in several of its more prominent portions of *extreme* hardness. It reaches nearly as high as the umbilicus, and protrudes the abdominal integuments, giving to the patient the appearance of a pregnancy of the fifth or sixth month. . . . The os uteri is patulous; and its lips, together with the cervix, are soft and swollen, but without any spots of induration." Iodine was given. The period ceased when the patient was fifty-two. Two years later "the tumour was not larger than an orange. By examining *per vaginam* I could discover scarcely any hardness of the cervix." Thus the tumour took six years to reduce itself to insignificant proportions; but the patient was then fifty-four. Two years later, when she was fifty-six, Dr. Ashwell could "externally scarcely make out any tumour."

(33) There is much confusion about the age of this case. The patient is reported as "Mrs. B—, aged forty-eight." She was under Dr. Ashwell's care in Guy's Hospital in the spring of 1837, "suffering considerable pain from a large *hard* uterine tumour about the size of a child's head. Iodine was given, and "the tumour continued slowly to diminish." Dr. Ashwell lost sight of her till 1853, when she consulted him about some pulmonary trouble. "On examination externally *no tumour was perceptible* even

when the fingers were pressed deeply down behind the pubes, and the cervix uteri is quite healthy."

Dr. Ashwell adds, "Mrs. B. married in November, 1837, the tumour then being as large as a small melon. She had been pregnant only once, and aborted at two months; this was very soon after marriage. She has ceased to menstruate two years. The tumour decreased rather more rapidly for two or three years after her marriage, and she assures me that for the last four years it has been as imperceptible as at present."

If the patient was forty-eight at the beginning of the history in 1837,* she must have been sixty-four in 1853 at the end. If so, the menopause, two years before, occurred when she was sixty-two! In all probability she was thirty-two when first seen, forty-six at the menopause, and forty-eight when last seen; this would place her in Series III, not Series IV.

Yet in No. 32 Dr. Ashwell states at the beginning that the patient was "aged forty-eight," whilst four years later she was "then fifty-two years of age," so that the age refers to the beginning of the history.

I suspect that in No. 33 Dr. Ashwell meant to say that the patient was forty-eight when she consulted him in 1853. The previous part of the history was admittedly imperfect.

This case is an object-lesson on the dangers of hasty reference and second-hand quotation.

These three cases of Dr. Ashwell's are practically of small value, but they have been quoted as examples of the spontaneous disappearance of fibroids. Dr. Playfair rightly connects the result with the age of the patients.

(34) Dr. Kidd (of Dublin) kindly sent me the details of an unpublished case in February, 1893. The patient was single, and aged sixty-one at the above date. "She was living in Germany as a governess in 1867, and then, for the first time found that menstruation became exces-

* "1837" cannot be a misprint for "1847," as Dr. Ashwell was Obstetric Physician to Guy's Hospital at the former date, when the patient was in that institution, according to the clinical history, but had retired before 1847.

sive. She came under my care in 1868, when about thirty-six years of age. On examination I found a fibrous tumour in the interior of the uterus. The uterus extended to midway between the umbilicus and pubes. She was very anæmic from loss of blood, but still able to carry on her work as a governess, and would not submit to any operative interference.

"In 1870 Dr. McClintock saw her with me. The tumour was now as large as the uterus about the seventh month of pregnancy. The hæmorrhages were so profuse as to prevent her making any exertion. We dilated the cervix, and found a large tumour in the uterine cavity. We thought it unadvisable to make any attempt to remove it. We brushed the surface over freely with strong nitric acid which checked the bleeding, and after a time she was able to resume her work, but the tumour continued to grow till it was as high as the xiphoid cartilage."

In 1884, when she was aged fifty-two, menstruation ceased. The tumour now began to diminish and gradually disappeared.

"I saw this lady on February 8th, 1893. The abdomen presents no appearance of a tumour. On passing my finger into the vagina I found the body of the uterus still as large as it could be about the twelfth or fourteenth week of pregnancy. I did not think it wise to pass a sound." The patient was in good health.

This must be included as a menopause case, since the tumour did not apparently begin to diminish till the patient was fifty-two and reached the menopause, which was protracted.

It is rather a good normal biological history of a fibroid than a case of "spontaneous disappearance." We find protracted menopanse, and diminution of the tumour afterwards, symptoms usually expected in fibroid disease. More such histories are wanted, such as Kleinwächter recently published. That author's opinion relating to the menopause is, however, peculiar.

(35) Another case under Dr. Kidd is of great interest.

A single lady, aged forty-four, first consulted him in 1852. The age is not stated in the original article on the case. Dr. Kidd kindly informs me, in a letter, that the patient died in 1875 or 1876, aged about sixty-seven. Hence she was about forty-four when she first came under his care, and in 1867, when it had reached its highest stage of development, she was fifty-three. The menopause, not occurring till several years later, was much protracted. There was a tumour about the size of a goose's egg. He watched the case; a second tumour developed, and by 1859 the abdomen was as large as in the seventh or eighth month of pregnancy. A portion of the tumour lay behind the uterus, pushing it upwards and forwards. The tumour was "of stony hardness," the uterine cavity "of normal length." There was no uterine hæmorrhage, but great pain in the tumour during the catamenia, and difficulty in defæcation. In 1861 the lower part of the tumour was fixed in the bony pelvis, being quite immoveable, the upper part reached to midway between the umbilicus and ensiform cartilage. The uterus lay too high in the pelvis to be reached by digital exploration. The tumour pressed on the right great sciatic nerve, causing severe pain. An air-pessary gave relief. At the end of 1863 menstruation became irregular, and the patient stated that she occasionally passed flesh-like masses "which she believed to have been coagula, as I presume they were." Menstruation ceased; the abdomen gradually diminished in size.

"On the 26th of June, 1867, I saw this lady, and examined her carefully. I could not detect any tumour in the abdomen. On passing my finger into the vagina I found a firm round tumour in Douglas's space, moveable, hard, but yielding slightly to the finger on pressure. The uterus was easily felt, pushed a little forwards by the tumour, but nearly in its normal position. The vaginal portion of the cervix and the os were quite defined. The uterus moved freely and independently of the tumour. The patient had not known of the existence of this part of the tumour,and believed the whole had disappeared."

Unfortunately Dr. Kidd gives no information as to the patient's age. We cannot presume that the cessation of the catemenia represented a natural menopause. If so, the case is at least interesting as illustrating how a large fibroid may disappear entirely from the abdomen and cease to cause pelvic trouble at the "change of life."

(36) A case "of the complete removal of a fibrous tumour by absorption" is recorded by Dr. Matthews Duncan. "What enhances the value in this case," says Dr. McClintock, "besides the thorough competency of the observer, is Dr. Duncan's own acknowledgment that he has been, as it were, forced against his judgment, by the evidence of a single case, to admit the possibility of the complete removal of a large fibrous tumour by absorption." Dr. Playfair testifies to the value of this case on the same grounds. Dr. Duncan writes, "The tumour was as large as the fœtal head at the end of pregnancy. It was as easily and as perfectly diagnosed as any case could be. There was no doubt ever thrown upon the nature of the case by any of the experienced practitioners who examined it. It had every character and symptom of a fibrous tumour. The patient was long in the most aggravated state of anæmia. Now there is as certainly no uterine tumour as there was certainly one formerly. The only method of escape for me, in the evidence of this case in favour of complete absorption, is the supposition that the tumour may have become spontaneously enucleated, separated, and discharged, without the consciousness of the patient. This alternative, I confess, considering the cleanly habits and truthful character of my patient, seems more unlikely than the other." Dr. McClintock quotes the above in full. On reference to Dr. Matthews Duncan's original record of the case, I find that he adds, "whatever may be the truth regarding this individual case, every one will admit that it is unreasonable, in the present state of therapeutics, to expect absorption of a fibrous uterine tumour." The patient had taken "small doses of iodide and bromide of potassium almost constantly for years;

but extensive experience with these remedies does not lead me to attribute to their use this singular good result."

Thus wrote Dr. Duncan in 1868. Twenty-five years' further experience has led gynæcologists to confirm fully his opinion. I regret to say that he does not give the age of the patient. If she was over forty-five the disappearance of the fibroid would not be a matter of great interest. He is careful to add, in a foot-note, "Cases of atrophy and absorption after delivery require separate study as occurring under special conditions." It is strange that he does not apply a similar rule to cases occurring near the menopause.

(37) Péan, after observing that fibroids tend to diminish towards the menopause, and even to disappear, describes a case which he saw five years before publication of his report, but the patient's age is not given. He discovered a fibroid filling almost the entire abdomen. As it caused no symptoms beyond a little inconvenience he advised that operative interference be postponed. He saw the patient five years later, and was very agreeably surprised to find that she had almost got rid of her tumour. "The treatment, confined to the administration of arsenic and tonics, had been sufficient to produce this result." I may here remark that a solid ovarian tumour could not have disappeared spontaneously.

These cases might be discussed at great length, but this communication is already, I fear, inconveniently long. The tables may assist the inquirer.

Errors in diagnosis are possible in every case, and I may safely say they must have occurred in several cases. Yet fibroid uterine tumours have been familiar to practitioners and specialists for long beyond the last generation, nor are they hard to distinguish, especially when multiple or well lobulated. Small subperitoneal growths are easy to detect and hard to mistake, and their disappearance has been closely observed (as in 8, 10, and 11, for example). If such growths disappear, larger growths, more exposed to traumatic and inflammatory dangers, may

likewise vanish. The history of hæmorrhages is important, but the absence of bleeding proves nothing, since that complication is absent in most subperitoneal and many interstitial fibroids. Perimetritic tumours show very definite symptoms; hydrosalpinx and pyosalpinx are never so hard as fibroids. Parametric effusions are ill-defined, though often very hard, and are attended by severe constitutional symptoms not noted in most of the cases here collected.

In these days we can all distinguish between the disappearance of a fibroid and the discharge of an intrauterine growth of the same nature, piecemeal; as in Sir C. Clarke's case which I quoted with Dr. McClintock's general observations on the subject. This complication, as I have already said, possibly existed, together with the undoubted presence of other fibroids, in my own case.

Series 4 is necessary to include with the other series, for the disappearance of fibroids in age is, as far as our present knowledge can guide us, a subject inseparably connected with their disappearance at an earlier epoch of a woman's life. I have shown how Kleinwächter at least finds that fibroids do not usually grow smaller after the menopause, though his cases were not watched for a sufficiently long period afterwards to warrant his assumption that they may not begin to decrease steadily a few years later. I often see several patients in whose cases I refused operation some years since on account of the age approaching the menopause; they have long passed that age, and their fibroids are decidedly smaller. I have not known absolute disappearance to occur in any of these cases.

In some of the cases here recorded, ergot, chloride of calcium, or other drugs or therapeutic measures may have played a considerable part in causing the disappearance of the growth; but wide experience has shown us that, as a rule, these means, now seldom relied upon, rarely ensure much benefit. The more reliable advocates of electricity simply claim that the fibroids grow smaller and

cease to give trouble under their treatment. If, on the other hand, electricity acted thoroughly, the disappearance of the fibroid could not be called in any sense "spontaneous." This question has, however, been well discussed before the Obstetrical Society.

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1. *Spontaneous Disappearance of Fibroids directly associated with Pregnancy.*

No.	Authority.	Age.	Menorrhagia.	Size and extent of tumour at its full stage of development.	State of tumour at end of clinical history.	Time in disappearing.	Remarks.
1	Scanzoni	?	?	"Size of a man's head"	Disappeared	6 weeks after delivery	Had existed 11 years.
2	Herpin and Mayor	?	?	Large enough to render Cæsarean section necessary	"Ultimately disappeared"	?	Tumour seen during Cæsarean section.
3	Pozzi	?	?	"A large fibroid"	"Disappeared without leaving a trace behind"	?	No complication at delivery.
4	Kidd (Dublin)	?	?	"Large fibrous tumour"	Disappeared	2 months after delivery	—
5	Sedgwick	30	?	5 "fibrous tumours, each as big as a walnut"	,,	See text	—
6	Simpson, A.R.	?	?	"Size of child's head," reached, after delivery, to right hypochondrium	"Size of hen's egg"	A few weeks	—
7	Id.	?	?	"Size of a walnut"	Disappeared	2 months	Did not reappear at next pregnancy.
8	Emmet	?	?	"As prominent and well-defined as a door-knob"	,,	?	Underwent involution after delivery.
9	Id.	?	?	?	,,	?	,,
10	Id.	?	?	"Much smaller than in either of the other cases"	,,	?	,,
11	Madge	40	?	Cluster, sizes varying from "that of a walnut to a large orange"	Some of the smaller fibroids "reduced to traces"	16 months after delivery	—
12	Phillips, John	36	?	"Size of a cocoa-nut" when craniotomy was performed	Disappeared	Under 1 year.	Patient died in childbed 1 year later (see text).
13	Kleinwächter	32	No	Above "the size of half a fist" (see text)	,,	Apparently during involution after delivery	—

2. *Spontaneous Disappearance of Fibroids; Patients under 45; History indicating Inflammatory Complication, Congestion, Injury, &c.*

No.	Authority.	Age.	Menorrhagia.	Size and extent of tumour at its full stage of development.	State of tumour at end of clinical history.	Time in disappearing.	Remarks.
14	Rigby	?	?	Two large masses, one "extending nearly, or up to, umbilicus"	Disappeared	Within 3 months	Acute pelvic inflammation.
15	Prieger	"Reached climacteric years"	Yes	"Size of big man's head;" reached higher than umbilicus and filled pelvis	See text	Under 6 months	Multiple fibroids, apparently soldered together by inflammatory deposit.
16	Playfair	35	Yes	"Apparently about the size of an adult head"	Disappeared	Under 10 months	Acute pelvic inflammation. Abscess burst into vagina (?), see text.
17	Doran	40	No	Hard, solid mass, reaching to level of umbilicus, and far downwards into Douglas's pouch	"	Within 10 months	See history at beginning of text.
18	Von Mosetig	?	Yes	"Solid elastic tumour as large as a man's head," * reached to within two fingers' breadth of the umbilicus (seen during exploratory operation)	"Scarcely as large as a man's fist" *	About 1 month	Extreme congestion; apparently cured by exploratory operation.
19	Guéniot and Jarjavay	40	Occasionally	Tumour filled pelvic cavity; several smaller outgrowths	"Not a trace of the large outgrowth could be detected"	4 years	Pregnant when first seen; attack of pelvic inflammation, third year.

* Sizes given in original *English* report only. See Authors quoted.

3. *Spontaneous Disappearance of Fibroids; Patients reported as under 45; Cases not directly associated with Pregnancy, Pelvic Inflammation, &c.*

No.	Authority.	Age.	Menorrhagia.	Size and extent of tumour at its full stage of development.	State of tumour at end of clinical history.	Time in disappearing.	Remarks.
20	Playfair	22	Yes	"Size of a large orange"	Disappeared	Under 9 months	Epileptic; bromide of potassium given.
21	McClintock	28	?	"Size of an orange" above pubes	,,	No trace within 2 years	Chloride of calcium treatment. Pregnant towards end of history.
22	Béhier and Guéniot	29	Severe	Lower part of abdomen filled by tumour; fornices effaced; fixed in pelvis	,,	3 months after admission into hospital	See text.
23	Courty	30	?	Interstitial tumour in anterior wall; size not indicated	"Hardly any trace"	Under a year	(Possibly Case 33 should follow here; see text on Case 33.)
24	Hildebrandt	33	?	It made uterus as big as at 28th week of pregnancy	Uterus reduced to normal size in non-pregnant multiparæ	15 weeks	Subcutaneous injections of ergotine.
25	Routh, C.H.F.	35	Yes	"Filled pelvis"	"Diminished to size of small apples"	See text	—
26	Kleinwächter	37	Severe	"Right horn of uterus extended to two fingers' breadth below umbilicus"	"Uterus not over the size of a fist"	Under 2 years	Ergotine given.
27	Depaul and Guéniot	38	Severe	Big as a man's fist	Disappeared	8 months	—
28	Ashwell	40	?	"Size of a fœtal cranium at full period of gestation"	,,	Within 4 years	—
29	Routh, C.H.F.	40	Abundant	"Filled pelvis"	"Diminished to size of small apples"	See text	—

4. *Spontaneous Disappearance of Fibroids; Patients reported over 45, or no age given; Cases not associated directly with Pregnancy, Pelvic Inflammation, &c.*

N.B.—The menopause, in women subject to uterine fibroid, is often delayed for several years.

No.	Authority.	Age.	Menorrhagia.	Size and extent of tumour at its full stage of development.	State of tumour at end of clinical history.	Time in disappearing.	Remarks.
30	Kleinwächter	45	Yes	Uterus reached to within two fingers' breadth of the umbilicus	"Hardly the size of a fist"	Under 7 years	Menopause at 50.
31	Ashwell and Wedd	46	Yes	"Size of a fœtal head"	Disappeared	4 years	See text.
32	Ashwell	48	Yes	"As large as a moderate sized adult head"	„	8 years	See text.
33	Id.	48?	?	"Size of a small melon"	„	?	Probably 32 when tumour was first seen. See text.
34	Kidd (Dublin)	52	Severe	Reached ensiform cartilage when patient was 40	„	Within 9 years of its greatest development	Began to diminish at 52. See text.
35	Id.	53	?	"Reached to midway between umbilicus and ensiform cartilage;" lower part fixed in pelvis	Tumour no longer abdominal; reduced to a firm mass in Douglas's pouch	Under 6 years from ditto	Tumour largest at 53. Menstruation continued several years later.
36	Duncan, J. Matthews	?	(Great anæmia)	"As large as the fœtal head at the end of pregnancy"	„	?	—
37	Péan	?	?	"Filling almost the entire abdomen"	"Almost disappeared"	Within 5 years	—

Dr. DUNCAN agreed with the author that uterine myomata sometimes spontaneously disappeared before the onset of the menopause. He mentioned the case of a patient aged thirty-three, who consulted him some two and a half years previously. She was suffering from profuse metrorrhagia, was very anæmic, and said that her abdomen had been rapidly enlarging for three months before her visit. On examination a soft central tumour was felt in the lower abdomen, reaching up to the umbilicus; it was found on bimanual examination to be continuous with the uterus, and the sound passed 4½ inches. Abdominal section was performed (as the woman seemed in a dangerous condition), but the tumour was everywhere fixed to the surrounding organs by adhesions which bled profusely on attempting to break them down, so the hæmorrhage was arrested and the operation of removing either the tumour or its appendages was not proceeded with. The patient came to see Dr. Duncan a year ago, looking much improved, and on examination he found to his intense surprise that the tumour had altogether disappeared, and the uterus felt of normal size. He had at the time of operation diagnosed the case as one of sarcoma uteri, and was at a loss to explain the disappearance of the tumour.

Dr. GRAILY HEWITT stated that in course of practice he had some years ago met with two cases in which he had observed disappearance, apparently by absorption, of uterine fibroid growths in women before the menopause. He considered the difficulty of getting really reliable proof of such occurrence great, but in the cases mentioned he believed there was no doubt as to the accuracy of the observation.

Dr. LEWERS mentioned a case of uterine fibroid he had seen that day, which showed well how different minds drew different conclusions from the same set of circumstances. The patient in question had been treated by him in the London Hospital some three or four years ago by four applications of electricity according to Apostoli's method. He could not satisfy himself that any benefit had resulted. The patient, however, was now much better, though still suffering a great deal of pain, and naturally enough attributed the improvement to the treatment adopted while in hospital. As she was now forty-seven years old, he himself thought it more likely that her improvement was due to the approach of the menopause.

Mr. ALBAN DORAN, in reply, said that he felt interested in Dr. William Duncan's case, which resembled von Mosetig's. Most fibroids did not disappear after exploratory operations, and the phenomenon was certainly rare. Science could offer no explanation how it was brought about. He agreed with Mr. Skene Keith in thinking that a submucous fibroid existed in his own case, and that its sloughing encouraged changes in the remaining fibroid growths sufficient to ensure their destruction. He also

found that fibroids became rather more troublesome at the menopause than before; Mr. Keith seemed correct in stating that it was not till about two years later that they began to diminish. Mr. Doran was not aware that Mr. Skene Keith had ever before claimed that Apostoli's treatment caused uterine fibroids to disappear. Dr. Keith, in the 'British Medical Journal,'* stated that the treatment "puts a woman with a fibrous tumour who suffers much into the position of a woman with a fibrous tumour who does not suffer, or may be even unaware of its presence. *It does not bring about the disappearance of the tumour, or it does so very rarely*, but the size is lessened more or less—one-half, one-third, two-thirds." Mr. Doran was, therefore, interested in Mr. Skene Keith's assertion, made that evening, that he had seen fibroid tumours really disappear after electrolysis. Dr. Graily Hewitt's two cases of absorption of fibroids were of value, especially as it appeared that the patients were both under forty. In Mr. Doran's own case the presence of inflammatory exudation was certain, as in Prieger's patient. In both, he admitted, the disappearance of a bulky mass represented in part the melting down of wide-spread exudation and infiltration, as well as œdema, but he had little doubt that in both large fibroid masses were absorbed as well. Dr. Lewers' observation was important. It would come under the qualifications which applied to Series IV in his tables, the patient being over forty-five, so that the share in the diminution of the fibroid, which might be allowed to Apostoli's treatment four years previously, remained problematical.

* "On the Treatment of Uterine Tumours by Electricity," 'Brit. Med. Journ.,' vol. i, 1889, p. 1281.

JULY 5TH, 1893.

G. ERNEST HERMAN, M.B., President, in the Chair.

Present—26 Fellows and 3 visitors.

Books were presented by Mr. Alban Doran, Dr. Gubb, and the Société Obstétricale et Gynécologique de Paris.

Thomas Roberts, L.S.A., was admitted a Fellow of the Society.

Frederick Bernard Betts, L.R.C.P.Lond. (Autofagasta, Chili), was declared admitted.

The following gentlemen were elected Fellows of the Society :—Arthur Arnold Beale, M.B., C.M.Glas. ; George Francis Blacker, M.B., B.S.Lond., F.R.C.S. ; Herbert Thomas Crosby, M.A., M.B., B.C.Cantab. ; Harry Finley, M.B.Lond. (Carlisle) ; Henry William Hubbard, L.R.C.P. Lond. ; S. Bueno de Mesquita, M.B., B.S.Lond. ; and Albert Rosenau, M.D.Würzburg, L.R.C.P.Lond. (Kissingen).

The following gentleman were proposed for election :— William Barnett Benjafield, M.B., C.M.Edin. (Lower Edmonton) ; and Francis Griffiths Swayne, M.A., M.B., B.C. Cantab.

Report of Committee on Dr. Amand Routh's Specimen of Anencephalic Monster, shown June 7th, 1893 (p. 241).

THIS monster was delivered by Dr. Williams of Camberwell on May 9th last, the confinement being expected towards the end of March.

The mother (aged thirty-six) and father and their three children were healthy. The child was alive at the beginning of labour. The presentation was complex, head, funis, one hand, and the feet all being felt *per vaginam*. Liq. amnii plentiful but not excessive. Podalic version performed under anæsthesia.

The monster is of the female sex, and with the exception of the head is very well formed. Length is 17½ inches. Weight 6 lbs. 7 ounces.

The general appearance of the monster is characteristic (toad-like).

The degree of deficiency in the vault of the skull is extreme—its place is taken by a thin red membranous structure, oval in shape (3 inches by 2 inches), somewhat resembling dura mater, to which the integuments are joined. The integuments around this oval area are covered with hair.

The head is extended and the face looks upward; the features are well formed, and the eyeballs prominent.

On reflecting the skin and membranous structure from the head a good quantity of felted, membranous, blood-stained tissue is seen lining the membrane covering up a large, somewhat heart-shaped cartilaginous mass, which is evidently the base of the skull.

The cervical vertebræ are normal in number and development. No sign of spina bifida.

No sign of brain substance can be seen anywhere either in cephalic or cervical regions, but the specimen is not in good preservation, and it is possible that the felted membranous blood-stained tissue is nervous.

The squamous portions of the occipital, the parietals, and the vertical portion of the frontal bones are entirely absent, but portions representing the ex-occipitals, basi-occipital, and post-sphenoid, with the petrous portion of the temporal, can be recognised.

The ex-occipitals are extremely large and wing-shaped, and probably consist of ex-occipital and mastoid portion of temporal, as joining the anterior end of this mass is a bar of bone running from it to the malar (zygoma).

The neural arches in the spinal column were then cut away. A thick blood-stained membrane was found (dura mater). This was opened, but no well-formed cord was found—merely a membranous structure round the spinal canal, which was much dilated (? syringo-myelia). From the lateral aspect of this membrane spinal nerves were seen arising.

At the upper end of the cord nerve-filaments arise, passing up through the foramen magnum and issuing through foramina in the basis cranii, possibly through representatives of the anterior cotyloid and jugular foramina.

These seem to be the ninth, tenth, eleventh, and twelfth nerves. Further forwards the fifth, with a ganglionic enlargement, and the sixth, seventh, and eighth nerves can be detected.

The spinal cord was removed with its membranes, but was too softened to make microscopical sections.

In the upper cervical region there is a distinct wide cystic dilatation, possibly a dilated central canal. A probe passes readily down this canal to the dorsal region, where the canal diminishes in size, and in the lumbar region the cord is so soft and flattened that the canal cannot be seen.

The cauda equina is developed, and the dura mater and pia arachnoid can everywhere be made out.

The left eye was dissected out. There was a slender optic nerve which passed through an optic foramen in its usual situation at the apex of the orbit to a depression on

the basis cranii. A section of the globe showed well-marked choroid, but tissue was too decomposed to recognise presence or absence of retina.

The chest and abdominal viscera are normal, with the exceptions that the right and left supra-renal capsules are only one-third normal size, and that there are two small cysts, size of No. 6 shot, in right ovary, and one also in the left. The muscles and nerves are well developed; thus the great sciatic nerves are $\frac{1}{8}$ inch in diameter.

Centres of ossification in each head of humerus are well seen, oblong in shape, $\frac{1}{6}$ inch by $\frac{1}{8}$ inch. There are no ossification centres in either head of the femur.

AMAND ROUTH.
HERBERT R. SPENCER.
ARTHUR E. GILES.

SPECIMEN OF SESSILE FIBRO-MYOMA FROM THE SUPRA-VAGINAL PORTION OF CERVIX UTERI WHICH HAD OBSTRUCTED LABOUR; REMOVED BY LAPAROTOMY; RECOVERY.

By WILLIAM DUNCAN, M.D., for H. A. LEDIARD, M.D.

FROM a woman, aged 40, who having had several natural labours experienced difficulty in the last, which occurred two years ago, when Dr. R. D. Helm found it necessary to turn and deliver a stillborn child. At that time a firm tumour was felt in the right fornix, and delivery was only effected after the tumour was pushed upwards out of the pelvis. Since that time pain in the back and constipation had continued, and the woman had, during the last few months, been incapacitated for household duties and confined to bed. Dr. Lediard saw her with Dr. Helm, and under chloroform it was found possible to displace the tumour from its position in the hollow of the sacrum and to feel it in the abdomen with the other hand.

There was elongation of the uterine cavity, but not more than ¾ inch. The tumour was firm and lay behind the uterus, and from the rectum was felt to be nodulated. The general appearance of the woman did not suggest anything malignant, and it was clear that a fibroid tumour existed in the pelvis, closely adjacent to the uterus.

On the 10th May, 1893, in the Cumberland Infirmary, laparotomy was performed. The tumour was with some difficulty made to pass through the opening in the abdomen, and there being no pedicle it was impossible to use a clamp. A circular incision was made in the capsule and the tumour shelled out of its bed. Free hæmorrhage from large veins followed, and some difficulty was experienced in securing the vessels in a ligature. The weight of the tumour was 6 oz., the long diameter 8 centimètres, and the short diameter 6 centimètres. In size it was equal to a cricket ball, and microscopical examination exhibited the structure ordinarily met with in these growths. After separation of the tumour from the uterus it was seen that it had developed in the commonest site for fibroids of the supra-vaginal cervix, namely, behind the cervix, and was incarcerated within the cavity of the pelvis unless forcibly thrust into the abdomen by the finger. During the operation the tubes and ovaries were found to be healthy, and lay in front of the growth.

A CASE OF ANENCEPHALIC FŒTUS.

By H. Stanley Ballance, M.B., B.S.Lond.

The following case occurred in the Maternity District of the General Lying-in Hospital, Lambeth.

Mrs. H—, aged 35, a healthy-looking woman, was delivered on June 24th last.

She had had no previous illness except at the time of her confinements.

As regards previous pregnancies there had been seven ending at term, and one miscarriage at the fourth month, the exertion of "wringing clothes in a machine" being given as the cause of the latter. In every case there was a good recovery. In stating the history of the present pregnancy she said that she thought she had gone her full time. The date of the last menstrual period was January 1890, three and a half years ago.

At the end of the fourth month she had a fall "flat on her stomach." The fœtal movements were very strong until about five weeks before birth.

Labour pains commenced on June 24th, at 9.30 a.m., and two hours later I was called to the case on account of flooding before labour, the midwife stating that the patient had lost about one pint. On examination I found that the cervix admitted one finger, an elbow was presenting, and the edge of the placenta was to be felt on the left side at the level of the internal os. The upper border of the uterus was found to be at about the level of the umbilicus, and the parts of the fœtus were indistinguishable by abdominal palpation. A quantity of liquor amnii of a greenish colour had previously escaped.

At twelve noon a large-sized Barnes' bag was introduced. This was expelled four and a half hours later, slight hæmorrhage occurring at the time.

At 5 p.m. the cervix admitted two fingers. The left arm, which was in the vagina, was replaced, and the right knee brought down through the os until the half-breech was well down in the cervix.

At 7.45 p.m. the fœtus was expelled, its abdomen being towards the mother's right thigh. The placenta was immediately expressed with no further hæmorrhage. The uterus was well contracted after an intra-uterine douche at 110° F., and the administration of Ext. Ergot. Liquid. ʒj. The description of the placenta by the midwife seemed to indicate that there were patches of fibroid and

calcareous degeneration on the maternal surface, that the diameter was about 4 inches, and that the membranes were very easily torn.

The following are the notes of the dissection of the fœtus, carried out with the assistance of Dr. A. E. Giles, to whom I am indebted. Two diagrams executed by Dr. Giles illustrate the condition of the scalp and of the central nervous system.

The fœtus of the female sex : weight 1 lb. 12¾ oz., length 12¾ inches.

The development of the body is proportioned to the size, the lower limbs, however, being rather small compared to the width of the shoulders.

The fœtus evidently died some time before birth, as the skin is peeled off the trunk and limbs with the exception of the feet and hands. The lower jaw gives a sound of grating on movement ; the roof of the palate is unusually flat.

The head, Fig. 1.—The vault of the skull is absent, and the skin has disappeared over a nearly circular area like

FIG. 1.

a large tonsure, leaving a sharp margin of scalp all round ; on the part of the skin that is left there are hairs. A

smooth reddish membrane covers the part of the skull where skin is wanting, and rests on the base of the skull. At a spot corresponding to the sella turcica is a depression partly filled by a tag-like fold of membrane. Posteriorly just above the atlas is a deep triangular depression; here the membrane is very thin, and in the centre of the triangular area is a circular smooth-edged aperture, through which a moderately thick probe can be easily passed along the spinal canal for a distance of about 1½ inches.

The viscera: thorax.—Thymus well developed. The thyroid is also well developed, and has a wide isthmus. The lungs are normal, and portions sink in water. The heart is normal, the foramen ovale and its valve well shown.

Abdomen.—Liver of normal size, light yellowish brown. Spleen large; alimentary canal normal. Both kidneys much lobulated, with deep sulci. Both supra-renal capsules very small. Genito-urinary organs well developed. No cysts or other abnormalities seen in the ovaries. All the abdominal organs are very soft, making dissection difficult and microscopical examination impossible.

Ossification.—A small calcareous mass the size of a mustard seed is present in the lower epiphysis of the left femur; no centres of ossification were found in the head of the femur or in that of the humerus.

Central nervous system, Fig. 2.—An incision was carried around the scalp, parallel with the abrupt circular margin of the skin, and the edge of the skin and the membrane continuous therewith were reflected towards the centre of the base of the skull. The laminæ of the vertebræ, which were complete throughout, were removed down to the sacrum. From the under surface of the membrane referred to, cranial nerves are seen passing to various foramina in the base of the skull; the series is continued down the spinal canal. The spinal cord is converted into a thin-walled tube with wide lumen. It presents the appearance, especially in the region of the medulla and upper portion of the cord, of a fine meshwork of fibres connected together by a thin membrane; the spinal nerves

spring from the thinned-out wall. At the lower end of the cord is the cauda equina. To expose the cord the dura mater was divided and reflected, leaving the lower extremity of the theca intact.

FIG. 2.

Dissection of central nervous system.

Remarks by A. E. Giles and H. S. Ballance.

The pathological history suggested by the appearances is as follows:—There seems to have been originally a brain

and spinal cord of normal dimensions; the development of the nerves, cranial and spinal, points to this. An accumulation of fluid then took place in the ventricles of the brain and in the central spinal canal, leading to internal hydrocephalus and syringo-myelia. With the extension of this process the nervous tissue was pressed upon and atrophied, and finally nearly or quite disappeared, the ependyma lining the central nervous system apparently fusing with the external membranes; the spinal cord was thus reduced to a thin-walled tube, and the brain to a thin-walled cyst adherent to the base of the skull with a circular margin. In the process of maceration undergone by the fœtus the cerebral cyst appears to have been destroyed, with the exception of the portion covering the base, and in this way the tonsure-like appearance was produced, the membrane visible on the surface being the original lining of the brain ventricles, the communication of which with the spinal canal is still visible. The little fold of membrane over the sella turcica is the remnant of the pituitary body.

Several cases of anencephalus have been brought before the notice of this Society, some of which are referred to by Mr. Doran in his account of Dr. Skene's case in the "Transactions' for 1889. In the same year specimens were shown by Drs. Griffith, Perigal, and William Duncan.

Mr. Doran calls attention to a point illustrated by this specimen, viz. the marked convexity at the line of junction of the basi-sphenoid and basi-occipital. Dr. Lloyd Roberts, in the account of his case in the 'Transactions,' vol. x, p. 269, has noted some points in connection with the labour which correspond almost exactly with features observed in this case, *e. g.* ante-partum hæmorrhage, placenta prævia, and transverse presentation necessitating version.

As this case presents some interesting points of difference from those previously shown, we have thought it worth while to bring it before the notice of the Society.

OBSERVATIONS ON THE ÆTIOLOGY OF THE SICKNESS OF PREGNANCY.*

By Arthur Giles, M.D., B.Sc.Lond., M.R.C.P.

(Received February 14th, 1893.)

(*Abstract.*)

With a view to discovering what are the chief factors which influence the occurrence of ordinary morning sickness during pregnancy, the author has analysed the records of 300 cases at the General Lying-in Hospital, and comes to the following conclusions:

1. About one-third of pregnant women are free from sickness throughout pregnancy; 45 per cent. are free from sickness during the first three months. Hence, absence of sickness cannot be regarded as of much weight in the early diagnosis of pregnancy.

2. When sickness occurs it begins in 70 per cent. of cases in the first month; a few begin in the second, third, and fourth months; the fifth and sixth are nearly free, and about 9 or 10 per cent. begin in the last three months (Table I). The duration varies from a few days to all through. Sickness is most frequent during the second month, as found also by Horwitz (Table II).

3. Sickness occurs rather more frequently in the last six months among single women (Table III).

4. Between the ages of twenty and twenty-five sickness is least frequent (Table IV, a); 90 per cent. of primiparæ over twenty-five suffer from sickness (Table IV, b).

5. There is less sickness in the third than in other pregnancies; and the sickness that occurs, both in this and in later

* The facts concerning the severity, duration, and time of onset of sickness, on which these observations were based, were obtained from questions asked of the women who came into the General Lying-in Hospital for their confinement.

pregnancies, is frequently in the later months or throughout. In the first two pregnancies there is much more sickness in the first three months (Table V, a). Comparing primiparæ with multiparæ sickness in the early or middle portion is more common among the former by 13 per cent.; sickness all through is more common in multiparæ by 9 per cent (Table V, b).

6. Sickness in the later period and throughout increases markedly with the weight of the child (Table VII, a) and placenta (Table VIII); but the mother's sickness does not interfere with the child's nutrition (Table VII, b and c).

7. Women who habitually menstruate painlessly and scantily suffer much less from sickness than those who suffer much pain and lose abundantly (Tables IX, X, XI). The degree of pain has a more marked influence than the quantity lost.

8. Generally speaking, scanty menstruation is associated with little or no pain; and profuse menstruation with more or less severe pain. Pain before the onset of the menstrual flow is more apt to be sacral, supra-pubic pain being more frequent during the flow. Sacral is oftener severe than supra-pubic. (Tables XII and XIII.)

In reviewing the subject generally the author agrees with those writers who do not regard sickness in any form as physiological. The most important views as to the causation of sickness, both mild and severe, are reviewed, and the insufficiency of any one of them to explain all cases is pointed out. Founding largely on the analogy of eclampsia, the author regards vomiting as chiefly one mode of manifestation of nervous instability, and so dependent on the interaction of three main factors:

1. The increased nervous irritability of pregnancy.
2. A local source of irritation.
3. A ready efferent channel for nervous energy (the vagi).

The relative influence of these factors is discussed. The general irritability varies according to age, class, race, and parity, and may manifest itself not only by vomiting, but by chorea, eclampsia, hysteria, or mania.

The mode of action of factors associated with menstruation is difficult to explain: it may be by its influence on either general or local conditions. The local irritation may act in the earlier

or the later months of pregnancy; if the latter, it is often closely connected with great distension of the uterus, as indicated by twins, or by a heavy child and large placenta.

The fact is recognised that mild and severe vomiting may alike come on from causes quite unconnected with pregnancy.

Sickness during pregnancy is susceptible of an ætiological classification and a symptomatic. Each has two main divisions, but a principal division of each is a subdivision of the other. Thus:

I. Ætiological.
  A. Independent of pregnancy.
    1. Mild.
    2. Severe.
  B. Dependent on pregnancy.
    1. Mild.
    2. Severe.

II. Symptomatic.
  A. Mild
  B. Severe } each being { 1. Independent of pregnancy. 2. Dependent on pregnancy.

From this cross-classification we get four varieties of sickness during pregnancy. Owing to the chief stress being laid on the severity of the vomiting, instead of its association with pregnancy, I believe that hitherto it has been almost assumed that all severe or "uncontrollable" sickness has been due to pregnancy; and this is why as many as twelve distinct theories as to the cause of severe vomiting can be enumerated. I shall return to this later.

Holding, with Bailly* and others, that the "uncontrollable" vomiting differs in degree only and not in kind from the milder variety, at least in its ætiology, I have analysed 300 cases, taken consecutively, to discover what factors chiefly influence the occurrence of ordinary "morning sickness." The particulars obtained referred to age, parity, civil state, weight of child and placenta, sex of child, usual menstrual characteristics, and a brief statement as to sickness. The notes were taken at the General Lying-in Hospital, Lambeth.

* Bailly, 'Arch. de Tocol.,' 1881, p. 43.

Horwitz, of St. Petersburg, expresses a widely prevalent view when he says,* "Truly it seldom happens that a pregnant woman, and especially a primipara, escapes without sickness;" whilst Ramsbotham goes so far as to say† that when vomiting "is entirely absent utero-gestation does not proceed with its usual regularity and activity." Montgomery‡ does not agree with this opinion, simply stating that "sometimes it does not occur at all." Tarnier§ sums up the matter as follows:—"A fairly large number of pregnant women suffer from neither nausea nor vomiting. The disturbances of the digestive functions, even when present, constitute a sign of but slight certainty; for not only may they depend on a suppression of menses apart from pregnancy; but they may also indicate some diseased condition in no way dependent on pregnancy." Graily Hewitt, commenting on Montgomery's views, says,‖ "Such exceptional cases of healthy pregnancy without vomiting necessitate the conclusion that sickness is not a physiological or necessary accompaniment of pregnancy."

Of the 300 cases examined, 100, or just one-third, were free from sickness throughout pregnancy; of the remainder, 36 had no sickness during the first three months; so that in all 136, or 45 per cent., had no sickness during the first three months. This confirms Tarnier's view that absence of sickness cannot be regarded as of much weight in the diagnosis of early pregnancy.

The time of onset varies; a few patients told me that it began on the day following what they believed to be the time of conception, and various authors, including Montgomery, give similar cases. More often it occurs during the first few weeks, and, as both Montgomery and Horwitz point out, not infrequently it begins at the time of

* Horwitz, "Ueber das Unstillbare Erbrechen der Schwangerin," 'Zeits. f. Geb. u. Gyn.,' ix, p. 113.

† Ramsbotham, 'Practical Observations on Midwifery,' part 2, p. 366.

‡ Montgomery, 'Signs and Symptoms of Pregnancy,' p. 96.

§ Tarnier, 'Traité de l'Art des Accouchements,' 1882, vol. i, p. 526.

‖ Hewitt, 'Severe Vomiting of Pregnancy,' London, 1890, p. 1.

the first "missed period." Horwitz, however, draws a greater distinction between nausea and vomiting than I should admit; he states* that whilst "nausea begins about three and a half to four weeks after the last menstruation, . . . vomiting commences most often at about the tenth week;" and adds in a summary that the longer the duration of nausea the shorter is that of vomiting, and that the more severe the nausea the less severe is the vomiting. He gives a table showing the frequency of onset at different periods; but his table is defective in that somehow 29 cases are included which, he states elsewhere, were free from sickness. In my cases the time of onset was as follows:

TABLE I, *showing the time of Onset of Sickness.*

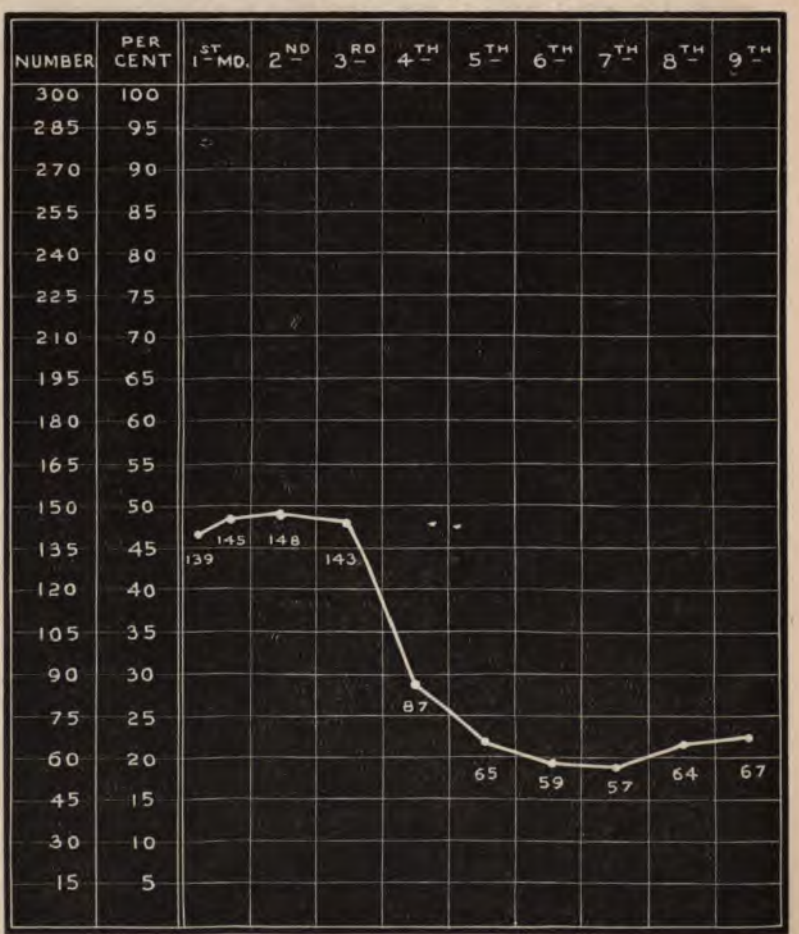
Time of onset.	No. of cases.	Per cent.
1st month	*143*	**71·5**
2nd „	*19*	**9·5**
3rd „	*12*	**6**
4th „	*6*	**3**
5th „	*1*	**0·5**
6th „	*1*	**0·5**
7th „	*7*	**3·5**
8th „	*8*	**4**
9th „	*3*	**1·5**
Total	*200*	**100**

The duration varies from "a few days" to "all through;" the duration is not, however, a criterion of severity. We saw above that 45 per cent. were not sick at all during the first three months, but 55 per cent. does not represent the proportion that are sick at any one time during that period. In order to determine this point I put down graphically the period of pregnancy covered by the sickness in every case, and from these data have drawn

* Horwitz, op. cit., pp. 114, 116, 117.

up a chart (Table II), showing the proportion of cases of sickness at any one time.

TABLE II.—*A Chart to show the relative Frequency of Sickness in successive months throughout Pregnancy.*



From this table it will be seen that the percentage for successive months is as follows:

1st month—1st fortnight	46	5th month	21
2nd „	48	6th „	20
2nd „	49	7th „	19
3rd „	47	8th „	21
4th „	29	9th „	22

The second month is thus the time when sickness is most frequent, the first and third being nearly equal to the second. But at the most the number of cases remains just under 50 per cent. Horwitz also finds the second month to be that in which there is most sickness.

To facilitate analysis I have classified all my cases under five headings:

I. No sickness	100	...	33·3 per cent.
II. Sick first three months, or "till quickening"	125	...	41·6 „
III. Sick middle part only	10	...	3·3 „
IV. Sick latter part only	26	...	8·5 „
V. Sick all through	39	...	13·3 „
	300		100

Probably the cause of sickness varies somewhat in the different classes. This will be discussed later. I pass on to consider the influence of various factors in the causation of sickness.

TABLE III.—*Relation of Sickness to the Civil State.*
(*Primiparæ only.*)

Married.			Single.	
No.	Per cent.		Per cent.	No.
21	**32·3**	Free from sickness	**28·3**	*8*
31	**47·7**	Sick first three months	**42·9**	*12*
5	**7·7**	Sick all through	**10·8**	*3*
5	**7·7**	Sick last three months only ...	**10·8**	*3*
3	**4·6**	Sick middle part	**7·2**	*2*
65	**100**	Total	**100**	*28*

Thus among married women, 32·3 per cent. are free from sickness; among single women, 28·3 per cent.

A greater proportion of single women are sick in the later months and all through, viz. 28·6 per cent. as against 20 per cent. married.

These figures suggest the influence of a mental factor in producing sickness, inasmuch as it is within the last six months rather than the first three that the fact of pregnancy becomes certain.

TABLE IV.—*Relation of Sickness to Age.*

(a) *On all Cases.*

	Under 20.		Under 25.		Under 30.		Under 40.		40 and over.	
Not sick	*4*	**26·6**	*48*	**42·8**	*21*	**28·7**	*23*	**25·8**	*4*	**36·3**
Sick first three months	*5*	**33·3**	*42*	**37·5**	*33*	**45·2**	*43*	**48·3**	*2*	**18·2**
Sick last six months .	*4*	**26·7**	*13*	**11·5**	*10*	**13·6**	*8*	**8·9**	*1*	**9·2**
Sick all through ...	*2*	**13·4**	*9*	**8·2**	*9*	**12·5**	*15*	**17**	*4*	**36·3**
Total = 300 ...	*15*	**100**	*112*	**100**	*73*	**100**	*89*	**100**	*11*	**100**

(b) *Among Primiparæ only.*

	Under 20.		Under 25.		Under 30.		Under 40.		40 and over.	
Not sick	*4*	**26·6**	*23*	**41**	*2*	**13·3**	*0*	**0**	*0*	**0**
Sick first three months	*5*	**33·3**	*22*	**39·3**	*10*	**66·6**	*6*	**100**	*0*	**0**
Sick last six months .	*4*	**26·7**	*8*	**14·4**	*1*	**6·8**	*0*	**0**	*0*	**0**
Sick all through ...	*2*	**13·4**	*3*	**5·3**	*2*	**13·3**	*0*	**0**	*1*	**100**
Total = 93 ...	*15*	**100**	*56*	**100**	*15*	**100**	*6*	**100**	*1*	**100**

From this it appears that twenty to twenty-five is the most favourable age; under twenty there is a relatively greater tendency to sickness in the later months. Over twenty-five the total tendency to sickness increases markedly, there being no cases free from sickness among primiparæ over thirty, and 90 per cent. of primiparæ above twenty-five suffering from sickness at some time during pregnancy. Matthews Duncan found that in other respects also, twenty to twenty-five was the most favourable age.

TABLE V.—(a) *Relation of Sickness to Parity (married women only).*

	I.		II.		III.		IV.		V.		VII—IX.		X+.	
Not sick	*21*	**32·3**	*25*	**34·2**	*17*	**41·5**	*12*	**38·7**	*5*	**33·3**	*5*	**21·7**	*7*	**53·7**
Sick first three months ...	*31*	**47·7**	*34*	**46·6**	*11*	**26·8**	*9*	**29**	*6*	**40**	*10*	**43·5**	*4*	**30·7**
Sick middle part	*3*	**4·6**	*2*	**2·8**	*1*	**2·4**	*1*	**3·2**	*0*	**0**	*1*	**4·3**	*0*	**0**
Sick latter part	*5*	**7·7**	*3*	**4·1**	*3*	**7·3**	*6*	**19·4**	*0*	**0**	*4*	**17·5**	*0*	**0**
Sick all through	*5*	**7·7**	*9*	**12·3**	*9*	**22**	*3*	**9·7**	*4*	**26·7**	*3*	**13**	*2*	**15·6**
Total=261	*65*	**100**	*73*	**100**	*41*	**100**	*31*	**100**	*15*	**100**	*23*	**100**	*13*	**100**

(b) *Comparison of Multiparæ and all Primiparæ.*

	Primiparæ.		Multiparæ.	
Not sick	*29*	**31·2**	*71*	**34·3**
Sick first three months	*43*	**46·2**	*82*	**39·6**
Sick middle part	*8*	**8·6**	*5*	**2·8**
Sick latter part	*8*	**8·6**	*18*	**8·7**
Sick all through	*5*	**5·4**	*31*	**14·6**
Total=300	*93*	**100**	*207*	**100**

From this it appears that the tendency to sickness is only slightly greater in the first than in the second pregnancy. The third appears to be the most favourable of earlier pregnancies; there seems to be least sickness with ten or more children, but the cases are too few to allow much stress to be laid on the figures. After the first two pregnancies sickness, when it occurs, is more often either in the later months or throughout.

When primiparæ are compared with all the multiparæ together (Table V, a), it is seen that fewer primiparæ escape sickness altogether; and that while 13 per cent. more primiparæ are sick in the early and middle months, 9 per cent. more multiparæ are sick all through. The proportion in the later months is just the same in both classes.

TABLE VI.—*Relation of Sickness to Sex of Child.*

	Male.		Female.		Twins.
Not sick	*64*	**36**	*36*	**30**	
Sick first three months	*74*	**41·5**	*51*	**42·5**	
Sick middle part	*6*	**3·3**	*4*	**3·3**	
Sick latter part	*14*	**8**	*11*	**9·2**	*1*
Sick all through	*20*	**11·2**	*18*	**15**	*1*
Total=300	*178*	**100**	*120*	**100**	*2*

This table shows, as we might expect, that the sex of the child makes practically no difference, there being a slightly greater prevalence of sickness with female children. It will be observed that in both cases of twins there was sickness at the latter part, this being probably associated with the greater distension of the uterus.

TABLE VII.—(a) *Relation of Sickness to Weight of Child.*

	Under 5 lbs.		Under 7 lbs.		Under 9 lbs.		Over 9 lbs.	
Not sick	*5*	**29·4**	*45*	**38**	*44*	**30·3**	*6*	**31·7**
Sick first three months ...	*8*	**47**	*47*	**40**	*63*	**43·4**	*7*	**36·5**
Sick middle part ...	*1*	**5·9**	*4*	**3·4**	*4*	**2·8**	*1*	**5·3**
Sick latter part	*1*	**5·9**	*10*	**8·4**	*13*	**9**	*2*	**10·6**
Sick all through	*2*	**11·8**	*12*	**10·2**	*21*	**14·5**	*3*	**15·9**
Total=299 ...	*17*	**100**	*118*	**100**	*145*	**100**	*19*	**100**

The weight of the child does not show a definite relation to sickness in the earlier months; but as the weight of the child increases there is a gradually increasing tendency to sickness in the later months, and throughout.

At the meeting of the Gesellschaft für Geburtshülfe und Gynäkologie, Berlin, March 28th, 1890, Flaischlen mentioned two cases of twins, and Schülein three cases of very large uterus, in which there was excessive vomiting.

It is interesting, in passing, to read Table VII (a) in the opposite direction, as in Tables VII (b) and (c); for we then see that the sickness is the consequent rather than the causal factor in relation to the weight of the child; or, in other words, the nutrition of the child is not affected by the mother's sickness. Thus among those not sick 50 per cent. bear children weighing over 7 lbs.; but among those that are sick this percentage is 57·4. This result confirms the opinion that exists, that depressing influences on the mother, whether functional or organic, have little or no effect in impairing the child's nutrition. We cannot suppose that sickness is the cause that the children in this group are heavier; so we conclude that heavy children constitute one factor in the causation of sickness.

TABLE VII.—(b) *Relation of Weight of Child to Sickness.*

Weight of child.	Not sick.		Sick first three months.		Sick middle.		Sick late.		Sick all through.	
Under 5 lbs. ...	*5*	**5**	*8*	**6·4**	*1*	**10**	*1*	**3·8**	*2*	**5·2**
Under 7 lbs. ...	*45*	**45**	*47*	**37·6**	*4*	**40**	*10*	**38·5**	*12*	**31·5**
Under 9 lbs. ...	*44*	**44**	*63*	**50·4**	*4*	**40**	*13*	**50**	*21*	**55·2**
Over 9 lbs. ...	*6*	**6**	*7*	**5·6**	*1*	**10**	*2*	**7·7**	*3*	**8·1**
Total=299 ...	*100*	**100**	*125*	**100**	*10*	**100**	*26*	**100**	*38*	**100**

(c) *Summary of VII* (b).

Weight of child.	Not sick.		Sick.	
Under 5 lbs.	*5*	**5**	*12*	**6**
Under 7 lbs.	*45*	**45**	*73*	**36·6**
Under 9 lbs.	*44*	**44**	*101*	**50·7**
Over 9 lbs.	*6*	**6**	*13*	**6·7**
Total=299	*100*	**100**	*199*	**100**

TABLE VIII.—*Relation of Sickness to the Weight of Placenta.*

	Under 20 oz.		20—30 oz.		Over 30 oz.	
Not sick	*32*	**36·1**	*56*	**33·2**	*4*	**21**
Sick first three months	*33*	**37·5**	*71*	**42**	*6*	**31·5**
Sick middle or late	*10*	**11·3**	*21*	**12·4**	*4*	**21**
Sick all through	*13*	**15·1**	*21*	**12·4**	*5*	**26·5**
Total=276	*88*	**100**	*169*	**100**	*19*	**100**

From this table it appears that the tendency to sickness increases as the weight of the placenta increases, and that the sickness so predisposed to comes on especially in the later months, including sickness throughout the pregnancy.

Probably the weight of the placenta bears a close relation to the total size of the uterus and its contents.

TABLE IX.—*Relation of Sickness to Menstruation.*

(a) *Relation to Pain during Menstruation.*

	No pain.		Moderate pain.		Severe pain.	
No sickness	*45*	**48·4**	*45*	**37·6**	*9*	**10·4**
Sickness first three months	*27*	**29**	*56*	**47·6**	*41*	**47·6**
Sickness last six months	*14*	**15**	*8*	**6·6**	*14*	**16·5**
Sickness throughout	*7*	**7·6**	*10*	**8·2**	*22*	**25·5**
Total=298	*93*	**100**	*119*	**100**	*86*	**100**

(b) *Relation to Quantity lost during Menstruation.*

	"Scanty" "Very little."		"Little." "Moderate." "Not much."		"Much." "Good deal."		"Very much." "Abundant."	
No sickness	*35*	**48·6**	*34*	**34**	*20*	**24·4**	*11*	**23·9**
Sickness first three months	*20*	**27·7**	*41*	**41**	*39*	**47·5**	*25*	**54·3**
Sickness last six months ...	*9*	**12·6**	*10*	**10**	*13*	**15·9**	*4*	**8·7**
Sickness throughout ...	*8*	**11·1**	*15*	**15**	*10*	**12·2**	*6*	**13·1**
Total=300	*72*	**100**	*100*	**100**	*82*	**100**	*46*	**100**

TABLE X.—*Relation of Sickness in the first three months to Menstruation.*

(a) *Relation to Pain during Menstruation.*

	No pain.		Moderate pain.		Severe pain.	
No sickness	*45*	**62·5**	*45*	**44·4**	*9*	**18**
Sickness	*27*	**37·5**	*56*	**55·6**	*41*	**82**
Total=223	*72*	**100**	*101*	**100**	*50*	**100**

(b) *Relation to Quantity lost during Menstruation.*

	Very little.		Moderate.		Much.		Abundant.	
No sickness	*35*	**63·7**	*34*	**45·3**	*20*	**34**	*11*	**31·4**
Sickness	*20*	**36·3**	*41*	**54·7**	*39*	**66**	*25*	**68·6**
Total = 225	*55*	**100**	*75*	**100**	*59*	**100**	*36*	**100**

Table X is a condensation of Table IX, cases of sickness late in the pregnancy and cases sick throughout being omitted, on the supposition that a factor connected with menstruation will exercise any influence it may possess during the first three months, whilst in the later months, and throughout, it is more often due to other influences.

Tables IX and X give the following results:

Whilst 48 per cent. of women who menstruate painlessly are free from sickness altogether, only 10 per cent. of those who suffer severely during menstruation escape from sickness.

Similarly, 48 per cent. of those who lose very little during menstruation are quite free from sickness; but only 24 per cent. of those who lose a great deal.

If we compare only those free from sickness and those sick during the first three months, the same principle is further emphasised.

The constancy of the relation is further shown by Table XI, where the influence of menstrual pain is analysed according to its effect in successive pregnancies.

Tables IX and X also suggest a certain direct relation between the degree of pain and the quantity lost during menstruation. With a view to elucidating this question I have analysed the records of the particulars concerning menstruation, with the result given in Tables XII and XIII.

TABLE XI.—*Relation of Menstrual Pain to Sickness in first three months in successive Pregnancies.*

Parity.	Sickness in first three months.	No pain.		Moderate pain.		Severe pain.	
I.	Not sick	*17*	**65·6**	*9*	**30**	*3*	**21·4**
	Sick	*9*	**34·4**	*21*	**70**	*11*	**78·6**
	Total=70 ...	*26*	**100**	*30*	**100**	*14*	**100**
II.	Not sick	*11*	**68·8**	*11*	**40**	*3*	**18·7**
	Sick	*5*	**31·2**	*17*	**60**	*13*	**81·3**
	Total=60 ...	*16*	**100**	*28*	**100**	*16*	**100**
III.	Not sick	*11*	**73·4**	*6*	**54·6**	*0*	**0**
	Sick	*4*	**26·6**	*5*	**45·4**	*2*	**100**
	Total=28 ...	*15*	**100**	*11*	**100**	*2*	**100**
IV—V.	Not sick	*7*	**87·5**	*9*	**56·3**	*0*	**0**
	Sick	*1*	**12·5**	*7*	**43·7**	*7*	**100**
	Total=31 ...	*8*	**100**	*16*	**100**	*7*	**100**
VI+.	Not sick	*9*	**64·3**	*2*	**40**	*1*	**9**
	Sick	*5*	**35·7**	*3*	**60**	*10*	**91**
	Total=30 ...	*14*	**100**	*5*	**100**	*11*	**100**

TABLE XII.—*To show the relation between the amount of Menstrual Loss and the degree, situation, and time of occurrence of Pain.*

	No pain.		Little or moderate pain.					Severe pain.				
			Before onset.	During.	Before and during.	Time not noted.	Total.	Before.	During.	Both.	Not noted.	Total.
Loss very little	35	Sacral ...	3	1	1	1	6	3	...	2	...	5
		Sup.-pubic	5	6	...	2	13	...	3	...	...	3
		Both ...	2	...	1	2	5	3	...	1	1	5
		Total ...	10	7	2	5	**24**	6	3	3	1	**13**
Loss moderate	28	Sacral ...	3	2	...	5	10	5	1	2	...	8
		Sup.-pubic	...	8	1	4	13	3	2	...	1	6
		Both ...	2	3	...	5	10	2	...	1	...	3
		Total ...	5	13	1	14	**33**	10	3	3	1	**17**
Loss much ...	26	Sacral ...	12	12	...	...	24	5	4	4	5	18
		Sup.-pubic	5	5	...	4	14	4	6	1	2	13
		Both ...	3	8	...	4	15	...	1	1	2	4
		Total ...	20	25	...	8	**53**	9	11	6	9	**35**
Loss very much	4	Sacral ...	2	2	...	1	5	4	1	5	2	12
		Sub.-pubic	1	1	...	...	2	...	1	...	...	1
		Both ...	2	...	...	...	2	1	5	1	...	7
		Total ...	5	3	...	1	**9**	5	7	6	2	**20**

Total No. of cases = 298.

TABLE XIII. (*Analysis of Table XII*).

(a) *Relation of Pain to Menstrual Loss.*

	Loss very little.		Loss moderate.		Loss much.		Loss very much.	
No pain	*35*	**48·6**	*28*	**36**	*26*	**22·8**	*4*	**12·1**
Little pain ...	*24*	**33·4**	*33*	**42·2**	*53*	**46·5**	*9*	**27·1**
Severe pain ...	*13*	**18**	*17*	**21·8**	*35*	**30·7**	*20*	**60·8**
Total = 298 ...	*72*	**100**	*78*	**100**	*114*	**100**	*33*	**100**

(b) *Relation of Time of occurrence of Pain to its Position.*

	Before onset.		During the flow.		Before and during.	
Sacral	*37*	**52·8**	*23*	**32**	*14*	**66·6**
Supra-pubic	*18*	**25·8**	*32*	**44·4**	*2*	**9·6**
Sacral and supra-pubic ...	*15*	**21·4**	*17*	**23·6**	*5*	**23·8**
Total = 163	*70*	**100**	*72*	**100**	*21*	**100**

(c) *Relation of the Position of Pain to its Severity.*

	Pain slight.		Pain moderate.		Pain severe.	
Sacral	*33*	**35·5**	*12*	**46·2**	*43*	**50·5**
Supra-pubic	*35*	**37·6**	*7*	**26·9**	*23*	**27**
Sacral and supra-pubic ...	*25*	**26·9**	*7*	**26·9**	*19*	**22·5**
Total = 204	*93*	**100**	*26*	**100**	*85*	**100**

Table XIII (a) confirms the suggestion of Tables IX and X. Whereas, when the menstrual flow is very little, there is freedom from pain in nearly half the cases, only one in eight of those who lose very much is free from pain. Severe pain, again, occurs in 18 per cent. of cases where the loss is very little ; and the proportion increases to 22, 30, and 60 per cent. as the quantity increases to "moderate," "much," and "very much." I do not wish to lay undue stress on the actual figures in these tables, but rather to call attention to the fact which they illustrate, that, broadly speaking, little loss is associated with little pain, and severe loss with severe pain. It is interesting also to note in passing that pain before the onset of menstruation is generally sacral in position, whilst that which accompanies the flow is more often supra-pubic (Table XIII, b) ; and that sacral pain is more often severe than supra-pubic (Table XII, c).

I now pass on to the general consideration of the ætiology of the vomiting of pregnancy.

Some have thought that in its milder form it is physiological ; Weber*, for instance, divides all vomiting during pregnancies into (1) the physiological ; (2) the pathological. Matthews Duncan (see later) held the same view. Ramsbotham, as above mentioned, thought that gestation could not proceed normally without vomiting. On the other hand, Graily Hewitt and others think it is not physiological. With this view I concur, and it seems to me to be supported by the fact of its non-occurrence in one third of all cases.

Mild vomiting, the "morning sickness" of pregnancy, has been attributed to one or more of several factors :—a "sympathy" between uterus and stomach ; turgescence of uterine vessels, suddenly increased by hydraulic pressure brought about by the erect position ; "hunger and weakness" acting at a time of maximum central nervous irri-

* F. Weber, "Ueber das Krankhafte erbrechen Schwangerer," 'Allgem. med. Centralzeit.,' 1877, 45—48. Abst. in 'Cent. für Gyn.,' 1877, i, p. 260.

tability (Barnes*) ; slight degrees of flexion, favoured by the emptying of the bladder in the morning (Graily Hewitt†). These factors partly account for morning sickness, but they do not all explain why vomiting should occur in early pregnancy, and not in the non-pregnant ; moreover we require an explanation that shall cover all the times and circumstances of pregnancy in which sickness may occur.

Of the severe vomiting of pregnancy there have been many theories ; I will enumerate chronologically some of the principal ones.

1. Bretonneau‡, in 1846, attributed it to sympathetic disturbance and deficient dilatability of the uterus.

2. Bennet§, 1850, thought that inflammation of the cervix was the cause ; Guéniot inclined to this view. Depaul‖, on the other hand, localised the causative inflammation in the fundus uteri.

3. Inman¶, 1860, explained the vomiting as due to "deficient vital power" in relation to pregnancy.

4. Turner**, 1861 : irregularities of circulation from pressure of the gravid uterus on blood-vessels.

5. Giordano writes††, in 1866, "And so it seems to me that it is to the irritation of the fundus of the uterus by the product of conception that is due the sympathetic phenomenon of vomiting." He bases his views on the belief that "irritation of the cervix shows itself by pain in the back ; whilst irritation of the body, and especially of the fundus, shows itself by vomiting."

6. Joulin‡‡, 1867, attributes vomiting to the distension of the peritoneum by the growing uterus.

* Barnes, 'A System of Obstetric Medicine and Surgery,' vol. i, p. 363.
† Op. cit., p. 119.
‡ Bretonneau, 'Bull. de Thér.,' August, 1846, p. 130.
§ 'Uterine Inflammation,' London, 2nd edit. (4th edit., p. 172).
‖ Quoted by Bailly, op. cit.
¶ Inman, 'Brit. Med. Journ.,' March 24th, 1860.
** Turner, 'West India Quart. Mag.,' 1861 ; quoted by W. J. Brock.
†† 'Des vomissements incoercibles pendant la grossesse,' Paris, 1866.
‡‡ Joulin, 'Traité complet d'Avortement,' Paris, 1867.

7. Graily Hewitt*, in a communication to the Obstetrical Society, enunciated his now well-known view that flexions and displacements constitute the important factor. This idea was not new, as Cazeaux† had referred to anteversion, and Moreau‡ to retroversion as a cause of sickness; and Copeman§ quotes a paragraph in Busch and Moser's 'Handbuch der Geburt,' 1840, where misplacements of the uterus are mentioned as a cause of sickness. But from the thoroughness with which Dr. Hewitt went into the subject it will remain associated with his name.

8. Barnes‖, in 1873, expressed the opinion that the vomiting was caused by stretching of the muscular fibres of the uterus. McClintock¶ held the same view, whilst Stoltz**, more guardedly states that uterine distension seems to be the cause.

9. Bailly††, in 1881, wrote, "Till the contrary is proved I shall continue to see in uncontrollable vomiting simply an exaggeration of the functional disturbances caused by pregnancy. . . . Disturbances associated above all with changes in the composition of the blood, and with modifications resulting therefrom in the action of the nervous system."

10. W. J. Brock‡‡, writing in 1883, says, "I lean strongly to the opinion that these obstinate cases of sickness take place quite independently of any peculiarity of the uterine tissues or distortion of the organ itself, and

* Graily Hewitt, 'Obstet. Trans.,' London, xiii, p. 108.

† 'Traité des Accouchements,' Paris, 1865.

‡ Moreau, quoted by Guéniot, *infra*, op. cit.

§ Copeman, 'Brit. Med. Journ.,' June 12th, 1875. The passage quoted is "Die dritte Art des Erbrechens wird dursch organische oder mechanische Krankhafte zu Stande erzeugt; z. B. durch eine übermässige Ausdehnung der Gebärmutter, *durch eine anomale Lage derselben.*"

‖ R. Barnes, 'Lancet,' 1873, i, p. 551.

¶ McClintock, 'Obst. Journ. of Great Britain,' 1873, p. 128.

** Stoltz, 'Nouveau dict. de Med. et de Chir. prat.,' Paris, 1873, vol. xvii, p. 61.

†† Bailly, op. cit., p. 43.

‡‡ W. J. Brock, 'Glasg. Med. Journ.,' 1883, vol. xix, p. 198, *et seq.*

that it depends simply upon an idiosyncrasy of the individual." He compares it to sea-sickness.

11. E. W. Roughton, 1885, in commenting on a case remarks*, "Probably the natural or physiological vomiting of pregnancy has some close causal relation with the altered nutrition described above [*i. e.* such mainly as induces cloudy degeneration in the glandular organs]; it seems, however, highly probable that the so-called pernicious or uncontrollable vomiting of pregnancy is symptomatic of acute fatty degeneration of organs, affecting mainly the liver." This enunciates a view first expressed, I believe, by Chomel†, and on which much has been written, especially in Germany; Matthews Duncan expressed the same view in the discussion on Graily Hewitt's paper at the Obstetrical Society.

12. There is, lastly, the view that vomiting in pregnancy is of hysterical origin; this was maintained by Kaltenbach‡ in 1891, and examples have been adduced by Keil§, Cohnstein‖, Grenser¶, and others.

Let it not be feared that I am about to add another to the formidable list. When a number of good observers of wide experience formulate so many hypotheses on one subject, it may generally be presumed that their hypotheses have something in common, and this is what I shall try to show.

The weak point in all the theories enumerated is that each one supposes that some particular factor is responsible for all or even for most cases of vomiting. The theories of Inman, Turner, and Brock (Nos. 3, 4, and 10) necessarily beg the question: it is really assumed that because

* E. W. Roughton, 'Lancet,' 1885, ii, p. 425.

† Chomel, quoted by Guéniot.

‡ Kaltenbach, abst. in 'Brit. Med. Journ. Supplement,' June, 1891.

§ Keil, 'Münch. med. Woch.,' Oct., 1891; abst. in 'Brit. Med. Journ. Suppl.,' Oct. 7th, 1891.

‖ Cohnstein, 'Cent. f. Gyn.,' Sept. 5th, 1891; abst. in 'Brit. Med. Journ. Suppl.,' 1891, p. 116.

¶ Grenser, 'Cent. f. Gyn.,' 1892, No. 26; abst. in 'Brit. Med. Journ. Suppl.,' Aug., 1892, p. 31.

there was vomiting, therefore there must have been "deficient vital power," irregularity of circulation, or "idiosyncrasy" at work.

The explanations of Bretonneau, Giordano, Joulin, and Barnes (Nos. 1, 5, 6, and 8) depend on factors always present in probably much the same degree, but incapable of definition; and if valid, there ought to be at least mild vomiting in every case. Experience disproves the view that any one of the lesions assigned by Bennet, Hewitt, Roughton, and Kaltenbach (Nos. 2, 7, 11, 12) is present in every case; for instance, can we suppose that two-thirds of all pregnant women have flexions of the uterus?

Guéniot, in a thesis which has become a standard work on the uncontrollable vomiting of pregnancy, says*, after commenting on the multiplicity of causes assigned for vomiting, "When, during pregnancy, the sympathetic or reflex action which this function exercises on the stomach is exaggerated by a general nervous condition or by a greater susceptibility of the stomach, if local and organic causes of irritation are added to the preceding influences, they will be able to play a leading part in the production of the accident." But even this statement is not quite wide enough: "the reflex action which pregnancy exercises on the stomach" is, I take it, only one form of manifestation of the high nervous irritability of pregnancy; and in this way I would answer the question he puts (p. 60): "Why, in uncontrollable nervous vomiting of pregnancy, does the uterus give its formidable preference to the stomach rather than to organs nearer, and in more direct communication with it?" I would reply that the "formidable preference" is not a monopoly of the stomach, but that, to speak metaphorically, the high nervous tension may overflow into other channels, *e. g.* the vascular and excretory systems causing eclampsia, the muscular system causing chorea, or it may expend itself

* Guéniot, "Les Vomissements incoercibles de la Grossesse," 'Thèse de Paris,' 1863, p. 67.

on the brain, giving rise to hysteria when mild, or to insanity when severe.

No doubt, of the milder manifestations of this instability, vomiting is one of the most common; and perhaps the explanation is that the vagi form a ready channel for such "overflow," as shown by the great number of diseases in which vomiting of nervous origin occurs*; and, moreover, the vagi are among the principal paths along which manifestations of the emotions travel, causing functional disturbances in heart and lungs as well as stomach.

Now just as, in the ætiology of eclampsia, it has come to be recognised that there are at least three factors which must always be taken into account—viz., 1, central nervous irritability; 2, presence of a local peripheral source of irritation; 3, high arterial tension,—so it seems to me that we have three factors to consider in discussing the ætiology of the vomiting of pregnancy, viz.—

1. The increased nervous irritability.
2. A local peripheral source of irritation.
3. A ready efferent channel for nervous energy (the vagi).

I find that Auvard, of Paris, mentions practically the same three factors as the ones that must be considered in discussing the cause of vomiting in pregnancy†. If the general nervous irritability or the local source of irritation be increased, or, theoretically, if the resistance along the vagi be diminished, vomiting may occur; and its intensity will depend on the relative proportion of these factors. On the other hand, the overflow may be into other channels, owing to other causes being also at work. I will now say a few words about each of the three factors above mentioned.

The *ready efferent channel* supplied by the vagi is not an unmixed evil; it is true that perfectly healthy

* Cf. Marcille, "Du Vomissement sympathique dans les maladies," 'Thèse de Paris,' 1863.

† Auvard, 'Arch. de Tocol.,' 1889.

pregnancy may begin and end without vomiting; but if unusual nervous instability be present, vomiting is no doubt a safer manifestation of it than most other forms of disturbance; and if Ramsbotham's remarks be taken as applying only to such cases, they command assent. The close association of vomiting with uterine disturbance apart from pregnancy has been well pointed out by Graily Hewitt*, who, however, applies his views on the influence of flexions perhaps rather too exclusively; no doubt other conditions may produce the same result.

Increased nervous irritability, apart from any unusual local disturbance, is able to cause vomiting; this is simply to express in other words Guéniot's statement that pregnancy *per se* may cause it. This is the factor that is involved when emotional causes are at work, and is enough to account for the fact that we found, that single women are rather more liable than married ones to sickness in the later months; it is well known that the same influence favours in some degree both eclampsia and mania. It may cause severe as well as mild vomiting; and considering the many forms that hysteria can take, it is not surprising that Kaltenbach and others have laid such stress on hysteria as a cause of "uncontrollable" vomiting. In such cases "moral" treatment, pure and simple, may sometimes effect a cure when other methods have failed. In this way powerful emotions may cure as well as cause vomiting.

Various predisposing causes, such as age, race, climate, and class, probably exert their influence through variations in nervous irritability. We should, then, presume that the nervous system possesses the greatest stability in respect to the disturbing effects of pregnancy between the ages of twenty and twenty-five. As illustrating the variations due to race and climate, Horwitz mentions † that Hohl of Halle had never seen a fatal case

* Graily Hewitt, "The Uterine Neuroses," 'Brit. Med. Journ.,' 1886, i, p. 1056; and ii, p. 148.

† Horwitz, op. cit., p. 134.

of vomiting. Dubois in Paris had seen twenty. He also states (p. 132) that "those who suffer from pernicious vomiting belong almost exclusively to the class that do not attend at hospitals;" Sutugin*, also, while denying that race has any influence, admits that the severe form is found more often among the rich; and others have had a similar experience.

We cannot at present tell why nervous instability should reveal itself in one case by vomiting, in another by eclampsia, and in a third by mania.

It is probable that when sickness occurs throughout pregnancy it is general rather than local conditions that are at fault; this view is supported by the fact that this kind of sickness is relatively more common in later than in earlier pregnancies (see Table V, a); for we may presume that in later pregnancies the uterus will take on its extra functions with less disturbance. Possibly it is due in multiparæ to debility associated with frequent childbearing.

The close association of sickness in the early months with certain types of menstruation, and especially with dysmenorrhœa (Tables IX, X, XI), is striking, and not easy to explain. Severe pain and profuse menstrual flow may be both due to nervous conditions.

In a previous paper † I showed that the tendency to great loss during menstruation is associated with a tendency to a more abundant lochial discharge; and that both seemed to be associated with a certain kind of "temperament," as far as this is indicated by variations of complexion due to pigmentation. But we cannot say that local uterine conditions may not be responsible, at least in some measure, for both the dysmenorrhœa and the vomiting. Yet, if we assign congestion as the common cause, we beg the question, as congestion may itself be a common result of some more profoundly seated influence.

* Sutugin, 'Hyperemess Gravidarum,' Berlin, 1883; abst. in 'Arch. de Tocol.,' 1884, p. 114.

† "On the Lochia" 'Obst. Trans.' 1893.

Some cases would no doubt be accounted for by malpositions, inflammation, &c.; but there would remain an insoluble residue. So for the present I content myself with calling attention to the facts, leaving the explanation to others.

The local source of irritation is a factor that we shall have to fall back upon to explain a certain proportion of cases. In some instances it may be present, and yet vomiting may not occur, owing to general good health and a non-excitable temperament; on the other hand, it may play a leading part in the production of vomiting, whether mild or severe. In this category will fall cases of inflammation and of flexions, as described by Bennet and Graily Hewitt; and a fair proportion of them may be relieved by Copeman's procedure, or by other local treatment. But I need hardly point out how important, on the part of the physician, is a wise abstention from local interference, unless this be distinctly called for by the gravity of the symptoms.

It is probable that when such causes as those just described are at work they will produce sickness in the earlier months of pregnancy; but there are other cases to be considered, viz. a certain proportion of cases (27 to 29 per cent., Table IX, a and b) in which menstruation is painless and scanty, and in which vomiting occurs till quickening. Local causes associated with pregnancy may perhaps be at work in some of these cases, such as stretching of muscular fibres (Barnes) or of peritoneum (Joulin). But that such causes, if they act occasionally, do not therefore necessarily act in all cases, is sufficiently shown by the large proportion of cases (45 per cent.) in which no sickness occurs during the first three months.

In the later months sickness is more obviously attributable in many cases to mechanical conditions. We saw (Tables VII and VIII) that there is a marked increase in the tendency to late sickness as the weight of child and placenta increases; and the cases above quoted of Flaischlen and Schülein point to the same thing. Giordano

believes that "the sickness in the later weeks is due to the obscure contractions of the uterus which prelude the definite contractions of labour, rather than to the pressure exerted on the stomach by the uterus;" but I incline rather, with Marcille, to the mechanical explanation; for "obscure contractions" might be presumed to come into play equally with smaller children and placentæ, whilst the greater frequency of late vomiting with twins and large children directly suggests pressure as the cause. The prevalence of late sickness in women under twenty is probably associated with small abdominal development, favouring pressure effects.

Lastly, there is a certain proportion of cases of sickness, both mild and severe, in which causes are at work, quite apart from pregnancy, which are quite enough to account for the symptoms—notably many diseases of the digestive tract. Whether in this category should be included cases of fatty degeneration of organs and acute yellow atrophy of the liver, or whether we are to consider this latter, with Matthews Duncan,* as more especially an acute and often fatal disease directly connected with pregnancy, is a much disputed question, which I shall not attempt to answer.

There remains to me now only the pleasant duty of recording my great indebtedness to Dr. Herman, at whose suggestion I began this inquiry, for much kind and valuable criticism; and to Dr. Cullingworth, equally with Dr. Herman, for permission to make and publish these observations on patients in the General Lying-in Hospital.

Dr. Peter Horrocks asked what was meant by the first month of pregnancy. Did it mean the four weeks following the first missed period or the preceding four weeks? If the latter, then his own experience was not the same. He was under the impression that the sickness of pregnancy in the great majority of cases began after one period was missed. The late Dr. Matthews Duncan had drawn a sharp distinction between the sickness *of* pregnancy and the sickness *in* pregnancy: the former was the sickness that belonged to, and was

* Matthews Duncan, 'Clinical Lectures on Diseases of Women,' 3rd ed., 1886, pp. 293, *et seq.*

caused in some way by, the pregnancy; whilst the latter was due to some other cause that would act whether pregnancy was present or not. Thus in a case of his own, quoted by Dr. Graily Hewitt, the patient had obstinate vomiting and died; a post-mortem examination revealed primary cancer of the liver. Dealing solely with the question of the sickness *of* pregnancy, he thought it was distinctly physiological. It came on as a rule during the first two months, and lasted from six to eight weeks. It was present in the majority of cases, and, according to Dr. Giles, in two-thirds of all cases. Hence he considered that sickness of this kind should be looked upon as the normal condition, and the cases in which sickness was absent as the abnormal condition, for which some explanation might be sought. If tartar emetic produced sickness in 66·5 per cent. of cases, surely it would be looked upon as a physiological effect, and the absence of sickness in the remaining 33 5 per cent. would require some explanation other than that of saying the sickness in the 66·5 per cent. was not physiological or necessary. He did not think that sea-sickness was a happy comparison. Sea-sickness was a sickness in the old English sense; "he fell ill of a sickness"—that is, an illness. Many people were very sea-sick without any nausea or vomiting; the dread or loathing of food was a marked feature of sea-sickness. The sickness of pregnancy, on the other hand, was nausea or vomiting simply. He did not think that the vomiting in the later months of pregnancy, so common in single women, had the same cause. The shame and fear of exposure was quite enough to account for the sickness in these cases. As to the cause of the sickness of pregnancy, he thought that the multiplicity of theories given by different writers proved that we did not at present definitely know. For himself he looked upon it as a reflex phenomenon, the pregnant uterus being the exciting cause, the nervous system the conductor, and the stomach and vomiting apparatus the parts affected.

Dr. Leith Napier agreed with Dr. Horrocks in thinking that from five to six weeks was a more usual period for the first manifestation of pregnancy sickness than during the first month. Excess of liquor amnii had not been mentioned by the author as a cause; this factor deserved recognition. He did not refer to hydramnion, which was frequently accompanied by sickness, but to any abnormal increase of the amniotic fluid. This was allied to increase of fœtal weight and placental size as a cause. He suggested that all cases of simple sickness of pregnancy came under one of two classes: (1) reflex irritability; (2) abnormal uterine conditions, which might be extra- or intra-uterine. As a general rule the sickness disappeared between the fourth and fifth month; it was, therefore, unwise to attribute too much importance to the curative influence of treatment.

He might, however, mention that in cases of evident reflex sickness he had, in a considerable number, seen much benefit from menthol given in gr. iss doses three or four times a day.

Dr. DAKIN was glad to observe that in Dr. Giles's most valuable paper the author had not considered the supposed distension of the uterus by the normally growing ovum to be even one of the causes of the vomiting of pregnancy. It was, of course, well known now that the uterus is not distended by, but grows with, the developing ovum. The only conditions in which local irritation could be said to have a share in causing vomiting were those of abnormal development of the ovum or other pathological states of the generative organs. Of the latter class of causes nothing positive was known. As it was stated in the paper, and was probably the case, that one of the factors in the production of this form of vomiting was the ready channel which the vagus afforded for carrying off the results of nerve disturbance, Dr. Dakin asked if the author had made any observations on the occurrence of cardiac palpitation or *quasi*-asthmatic attacks, either simultaneously or alternating with attacks of vomiting. One would rather expect this, remembering the physiology of the vagus nerve. It had been mentioned by previous speakers that they had cured the vomiting of pregnancy by certain modes of treatment, and, in consequence, they held theories as to its nature. It was hardly necessary to point out that nothing was so unreliable as deductions from the results of treatment of this disorder. It frequently ceased quite suddenly in the absence of treatment, and the cases were always most striking about the end of the third month, when, as is illustrated by Table II in the paper, vomiting ceases in about half the cases. It was evident from the paper that vomiting began rather earlier in pregnancy than has been usually supposed. Here 139 women had vomiting during the first fortnight; the greatest number vomiting at any time (148 in the second month) only exceeded the first number by 9. Unless, however, some fallacy in the method of arriving at these figures could be shown, such figures far outweighed in value any general impressions.

The PRESIDENT thought that the paper before the Society was one of the most valuable additions to our knowledge of the subject that had ever been made. Its value depended on two things. First, it was based on a larger number of cases than any other paper with which he was acquainted. Second, Dr. Giles had analysed these cases in an impartial, unbiassed way. Most former papers on the subject were written either to recommend some special treatment or to prop up some theory as to the production of the vomiting. Dr. Giles, on the contrary, had, without any preconceived theory, set to work simply to find out what were the facts. He (the President) agreed

with what Dr. Dakin had said as to the fallacy of drawing conclusions about this disease from the effect of treatment. Not only was it difficult to distinguish relief which was the result of treatment from that which would have occurred if no treatment had been used; but the vomiting of pregnancy was a functional nervous disorder, and all functional nervous disorders were usually benefited for a time by any treatment that was novel and fussy, and so made a vivid impression upon the patient's senses and upon her mind. The subject was a very difficult one, and Dr. Giles had not cleared up everything that was obscure about it, nor had he claimed to have done so. But he had brought out some important, novel, and interesting facts. First, he had shown that the patients who suffered pain when they menstruated were more liable than others to vomit when they became pregnant. He (the President) did not think this hard to understand; patients whose nervous systems were very sensitive were those liable to pain and liable also to vomiting from slight causes, among which were menstruation and pregnancy. Second, Dr. Giles had shown the concurrence of vomiting at the end of pregnancy with unusual distension of the uterus. This he (the President) thought might be a local effect due to pressure on the stomach. Thirdly, it was interesting to compare Dr. Giles's results with the statistics as to pregnancy collected by the late Dr. Matthews Duncan. Dr. Duncan had shown that, tested in various ways, the most favourable age for child-bearing was about twenty-five, and that on the average the third child was the best specimen of a family. Dr. Giles's figures showed that it was precisely in these patients that the vomiting was least. Dr. Giles had also shown that after twenty-five the liability to sickness increased with age; and in this it resembled some other diseases of pregnancy.

Dr. Giles, in reply, thanked the Fellows for their cordial reception of his paper. The time of the onset of sickness was judged from the statement of the women themselves, made at the time of their confinement. He could not agree with Dr. Horrocks in regarding sickness as physiological; the fact that in one-third of all the cases there was no sickness at all seemed to him conclusive. The illustration of Dr. Horrocks, of the action of an emetic as causing physiological vomiting, he did not consider as parallel; he should define such emetic action as pharmacological rather than physiological. Dr. Horrocks had attributed to him the view that sickness was caused by the nervous irritability of pregnancy: this was not quite his position, as he regarded sickness as due not to any one factor, but to the interaction of several. He preferred to avoid the term "dysmenorrhœa," as the meaning of the word was rather an uncertain quantity; but his tables refer-

ring to menstruation did not deal exclusively with cases of dysmenorrhœa, or even of painful menstruation, but with 300 cases of ordinary menstruation: he did not consider a little or even much pain as necessarily due to dysmenorrhœa. He had had no experience of cases of sickness continued for months after labour, as the patients left the hospital, as a rule, at the end of a fortnight. In reply to Dr. Heywood Smith's question, he included in the term "local source of irritation" both pathological conditions of the uterus such as erosions, lacerations, flexions, metritis, new growths, &c., and also the presence of the fœtus, which though not in itself necessarily a focus of irritation, might become so when other conditions predisposed thereto. Abundance of liquor amnii was very properly referred to by Dr. Leith Napier as a factor in the causation of sickness; he included it under the category of "undue distension of the uterus," and had not specified further in order not to go too far into detail. He had purposely omitted all reference to treatment; partly because he was not called upon to treat the patients whose histories he obtained, and partly because on looking over the literature he found the subject to be too vast to be dealt with both briefly and satisfactorily; the mere enumeration of remedies suggested would take a considerable time. He quite agreed with the President that the sickness of pregnancy was above all a nervous disease. In conclusion he could only thank the President for his very kind and encouraging remarks. It was because the paper was mainly an observation of facts that he had ventured to bring it before the Society.

NOTE ON THE EFFECT OF THE INFLUENZA POISON UPON THE LYING-IN WOMAN.

By Augustus W. Addinsell, M.B., C.M.Edin.

(Received April 18th, 1893.)

OCTOBER 4TH, 1893.

G. ERNEST HERMAN, M.B., President, in the Chair.

Present—44 Fellows and 5 visitors.

Books were presented by Mr. Alban Doran, Dr. Galabin, Dr. Khory, Dr. Muret, Sir Spencer Wells, Bart., the Royal Medical and Chirurgical Society, the Guy's Hospital Staff, the St. Thomas's Hospital Staff, and the American Association of Obstetricians and Gynecologists.

Arthur A. Beale, M.B., C.M.Glas., was admitted a Fellow of the Society.

Roger N. Goodman, M.A., M.B.Cantab. (Kingston-on-Thames); and Albert Rosenau, M.D. (Kissingen), were declared admitted.

The following gentlemen were elected Fellows:—William Barnett Benjafield, M.B., C.M.Edin. (Lower Edmonton); and Francis Griffiths Swayne, M.A., M.B., B.C.Cantab.

The following gentlemen were proposed for election:—Richard Alcock, M.B.Vict. (Goole); George Gunnis Ferguson, M.B., C.M.Glas.; Leonard Grant, M.D.Edin. (New Southgate); James Atkinson Hosker, M.R.C.S. (Boscombe); Robert Douglas Muir, L.R.C.P.Lond.; George C. Steele Perkins, M.B., C.M.Edin.; James Ramsay Webb, M.B., B.S.Melbourne; and Robert James Williams, M.D.Durh.

The Death of Dr. W. M. Graily Hewitt.

A vote of condolence on the death of Dr. W. M. Graily Hewitt, past President of the Society, was put from the Chair in the following form :

"The President, Council, and Fellows of the Obstetrical Society of London take the earliest opportunity of offering to Mrs. Graily Hewitt and family the expression of their deep sympathy in the great loss they and the profession have sustained in the recent lamented death of their highly distinguished Fellow, Dr. Graily Hewitt, who was also one of the Founders and the first Honorary Secretary of the Society."

This vote was carried unanimously.

DISSECTION OF A CASE OF SPINA BIFIDA.

By T. W. Eden, M.D.

The specimen was a dissection of a case of spina bifida which occurred in Queen Charlotte's Hospital on May 30th, 1893. The mother of the child presented an interesting clinical history. She was forty-five years of age, and had been many times pregnant, but did not suspect that she was again pregnant until she felt the fœtal movements. At the end of the sixth calendar month she experienced a considerable loss of pinkish watery fluid from the vagina, accompanied by slight abdominal pains suggesting labour pains; there was no sudden rush, but a continuous trickle of waters for six to seven hours; the pains and the flow ceased together. This experience was repeated at the end of the eighth month, and it is obviously an example of the condition known as hydrorrhœa gravidarum. Labour occurred at term, and was initiated by

an escape of fluid as on the two previous occasions, the pains gradually increasing in severity until they became true labour pains. Labour was uneventful, and the child (a male) was well developed with the single exception of the spina bifida. The sac was collapsed at birth, and had evidently ruptured during labour. The attitude of the lower limbs was peculiar: the thighs were flexed on the abdomen, the legs flexed on the thighs; the thighs, however, were abducted, the legs markedly adducted, so as to carry the feet across one another, thus closely resembling the attitude of a tailor sitting on a bench. The sac filled up rapidly and the rent closed, but the child died on the seventh day, and examination revealed the presence of extensive spinal meningitis. The spina bifida occupied the sacral region, and was due to non-development of the sacral vertebral arches. The wall of the sac was lined by the dura mater, and the fluid accumulation was in the subdural space. The entire cauda equina passed through the sac to the posterior wall, to which it was attached; here the nerve-trunks pierced the dura, and then coursed through the sac wall behind the dura to the sacral foramina through which they passed to the pelvis.

Mr. Alban Doran felt interested in the frequent relation between hydramnion and acardiac twins. Excess of liquor amnii was not rare in association with other forms of monstrosity. Perhaps Dr. Eden could explain why this was the case. The diagnosis of hydramnion when the fœtus was small and dead, other signs of pregnancy having disappeared, was a matter of high interest. Mr. Doran knew of one instance where this condition existed, but ovarian cyst was diagnosed. The uterus was laid open and had to be removed. Hydramnion was easily mistaken for cystic fibroid in a subject where the catamenial history was in any way misleading.

Dr. Amand Routh alluded to the possibility of obtaining abdominal *ballottement* in the Sims or genu-pectoral position, in most cases of hydramnios this sign and the presence of intermittent uterine contraction being the most valuable aids to diagnosis. He questioned the accuracy of Mr. Doran's statement that an anencephalic fœtus was invariably single, not twin. Certainly there was no reason that such should be the case.

A PLACENTA FROM A CASE OF ACCIDENTAL HÆMORRHAGE.

By R. D. Muir.

The patient was admitted to Queen Charlotte's Hospital on October 2nd, under the care of Dr. Griffith. Eighteen days before admission she was very much frightened by a rat, and believed that in consequence something would go wrong with her confinement. She went to bed at once, and after rising for the first time at the end of a week profuse bleeding commenced. She took to her bed again, and while asleep seven days later, a second, though not so severe, attack of bleeding took place. Dr. Griffith saw her on October 3rd, and ordered labour to be induced, which it was the same evening; pains began at 4 a.m. on the 4th, and the child was born at 7.5 a.m., the membranes rupturing at the moment of birth. The placenta showed plainly the remains of two separate hæmorrhages on its surface, the older occupying two-fifths, and the more recent one-fifth; as only two-fifths remained attached, had pregnancy continued the chance of the mother having a living child would have been small. As it was, though six weeks before term, it was likely to survive. Labour was induced because the hæmorrhages had been so severe, and she would have gone home again, where a third attack without anybody at hand might have been attended by a fatal result.

Dr. Griffith remarked that the specimen was an illustration of a large group of cases in which the termination of pregnancy was imperatively demanded for the safety of the mother as well as of the child; a group of cases of hæmorrhage in advanced pregnancy where placenta prævia was excluded, where the hæmorrhage though important was not immediately dangerous to the mother's life, the same principle of treatment must be adopted as in cases of placenta prævia, and the uterus must be emptied without delay. In this case he had been fortunate in the birth

of a living child, though more than half the placenta had been separated from the uterus.

Dr. Herbert Spencer would like to call attention to one point in the history of the case, namely, that the patient had been frightened by a rat. He (Dr. Spencer) had several times known the sudden appearance of a rat or mouse to be followed by accidental hæmorrhage in pregnant women. He had recently seen in a ladies' journal the attractive head-line, "Why do women fear mice?" and he had perused the article without obtaining much enlightenment; it was, however, a world-wide experience that the sight of these animals excited great terror in women, and he supposed the explanation of the hæmorrhage was a sudden reflex uterine spasm which separated part of the placenta. Coitus also was a common, but, as far as he knew, an unrecognised cause of accidental hæmorrhage. He quite agreed that the proper treatment was to induce premature labour when the hæmorrhage was severe and repeated, as in this case.

FEVER IN CHILDBED.

Part II.—The Relation of External Meteorological Conditions to the Incidence of Febrile Illness in Childbed.

By Robert Boxall, M.D.Cantab., M.R.C.P.Lond.,

assistant obstetric physician to, and lecturer on practical midwifery at, the middlesex hospital.

(Received December 19th, 1892.)

(*Abstract.*)

The subject is considered under two heads—mortality, morbidity.

The statistics of mortality are derived from the Registrar-General's returns for London, and from Professor Lusk's table for New York, and of morbidity from the records of the General Lying-in Hospital.

These statistics are given in tabular form, and are graphically represented by a series of charts.

Chart I.—*Season Curve of Puerperal Fever or Metria.* London—Mortality—1848 to 1874.

Chart II.—*Season Curve of Puerperal Fever or Metria.* New York—Mortality—1867 to 1875.

Chart III.—*Season Curve of Puerperal Fever or Metria.* London—Mortality—July, 1882, to June, 1889.

Chart IV.—*Season Curve of Accidents of Childbirth.* London—Mortality—1845 to 1874.

Chart V.—*Season Curve of Septicæmia and Pelvic Inflammation in Childbed.* General Lying-in Hospital—Morbidity—July, 1882, to June, 1889.

Chart VI.—*Season Curve of Septicæmia and Pelvic Inflam-*

mation in Childbed. General Lying-in Hospital—Morbidity—(1) July, 1882, to April, 1884, (2) May, 1884,* to June, 1889.

CHART VII.—*Season Curve of Septicæmia and Pelvic Inflammation (including severity of illness) in Childbed.* General Lying-in Hospital—Morbidity—(1) July, 1882, to April, 1884, (2) May, 1884,* to June, 1889.

CHART VIII.—*Season Curve of Febrile Illness other than Septicæmia and Pelvic Inflammation in Childbed.* General Lying-in Hospital—Morbidity—July, 1882, to June, 1889.

CHART IX.—*Season Curve of Febrile Illness other than Septicæmia and Pelvic Inflammation in Childbed.* General Lying-in Hospital—Morbidity—(1) July, 1882, to April, 1884, (2) May, 1884,* to June, 1889.

CHART X.—*Season Curve of Febrile Illness, from all causes combined, in Childbed.* General Lying-in Hospital—Morbidity—July, 1882, to June, 1889.

CHART XI.—*Season Curve of Febrile Illness, from all causes combined, in Childbed.* General Lying-in Hospital—Morbidity—(1) July, 1882, to April, 1884, (2) May, 1884,* to June, 1889.

CHART XII.—*Season Curve of Febrile Illness, from all causes combined (including severity of illness), in Childbed.* General Lying-in Hospital—Morbidity—(1) July, 1882, to April, 1884, (2) May, 1884,* to June, 1889.

These charts, for purposes of comparison, have been constructed upon an uniform plan, as follows:—In the mortality charts (I to IV) all the fatal cases registered during the several months of the year have been added together for a series of years, and the results so obtained have been expressed in percentages above and below the mean. In Chart III the calculations have been made for each quarter of the year instead of for each month, as in the other charts. In the morbidity charts (V to XII) a similar method has been adopted with regard to the cases of febrile illness. In all the charts bearing upon morbidity and in Chart III, on mortality, corrections have been made for variations in the birth-rate. In other charts, dealing, as they do, with large numbers, it was unnecessary to adopt this means of securing greater accuracy in the original data. Each chart

* At this date, as was fully explained in the previous part of this paper a marked improvement took place in the condition of the hospital.

is duplicated in order to show more distinctly the winter variation. The interrupted line running through the charts indicates the curve according to Bloxam's method (see Table XXX).

CHART XIII.—*Death-rate of London from Puerperal Fever and from Childbirth; Fever-rate of the General Lying-in Hospital from Septicæmia and Pelvic Inflammation, and from all causes combined, and External Meteorological Conditions, as represented by Mean Rainfall, Mean Temperature, Percentage Sunshine, and Mean Barometric Pressure,* for each quarter or each month of the seven years, July, 1882, to June, 1889 (see Table XXXI).

The following conclusions are offered:

A. *Mortality.*

(1) *The death-rate from puerperal fever is greater during the winter than during the summer months.* Charts I, II, III.

The same holds good for different places, compare Charts I and II, and for different periods, compare Charts I and III.

The death return under the head of puerperal fever is incomplete, compare Charts I and IV. This only strengthens the above conclusion.

B. *Morbidity.*

(2) *Septic illness in childbed is more prevalent in winter than in summer.* Chart V. In this respect it agrees with mortality. Compare with Charts I and II.

The same holds good both before and after May, 1884. Chart VI, (1), (2).

(3) *Septic illness, though more prevalent, is attended with less fever and, therefore, is of less severity in winter than in summer.*

This holds good for both periods. Chart VII (1), (2). Compare with Chart VI (1), (2).

The question is raised as to whether death or transfer of patients would so cut short the fever record as to account for this difference; also, would association with other (accidental) cases of fever serve to subvert the curve. Both questions are answered in the negative.

(4) *Other (accidental) cases of febrile illness are more prevalent during the summer than winter.* Chart VIII.

The same holds good for either period, and is especially marked after May, 1884. Chart IX (1), (2).

The question is considered as to whether this difference is merely apparent (though masking by septic illness) or real. It is proved to be real, Chart IX (2). Compare also with Charts X and XI (2).

(5) *In severity these other (accidental) cases evince no difference according to season*, compare Chart XI (2) with XII (2).

(6) *The septic cases during the later period have been so few, and generally speaking of such slight intensity that they have proved insufficient to neutralise the summer prevalence of non-septic cases*, compare Charts X and XI (2), *even when the severity of the illness is taken into account*, compare also with Chart XII (2).

This does not hold equally good of the early period, Charts XI (1) and XII (1).

(7) *Though in the hospital, where the patients are more certainly exposed to external meteorological influences, it is still possible to discover an increased tendency to the prevalence of septic illness during the winter, since May, 1884, the amount of illness of this description has been so slight that no such variation in accordance with the season of the year can be traced as will in any degree correspond with that observed in practice outside the hospital.* Chart XIII.

In my thesis on "Antisepsis and General Hygiene," published under the title of "Fever in Childbed" in the 'Obstetrical Transactions,'* to adapt the words of the opening sentence, I cast my glance backwards from the eminence of the General Lying-in Hospital, over the table-land of the puerperal state, for the purpose of surveying the subject of fever in childbed by means of a series of thermometric observations which have been carried on continuously during a period of seven years, and which, for purposes of comparison, were presented in a collective form for each month.

In the present thesis I propose to continue the argument, and, by utilising the evidence then brought forward

* 'Obstet. Trans.,' vol. xxxii, 1890, p. 219.

as a basis for comparison, to discuss the relation of external meteorological conditions to the incidence of febrile illness in childbed.

The subject will be considered under two heads—Mortality and Morbidity.

Mortality.

It has been suggested that febrile illness in childbed is due, at any rate in part, to outside meteorological conditions, generally spoken of as "the weather."

The late Dr. Matthews Duncan in this country, and Professor Lusk in America, some years ago pointed out the increased prevalence of childbed fever during the winter months.

Matthews Duncan, at the close of his masterly article "On the Alleged Occasional Epidemic Prevalence of Puerperal Pyæmia or Puerperal Fever, and of Erysipelas," read before the Medico-Chirurgical Society of Edinburgh, and published in the 'Edinburgh Medical Journal'* in 1876, says, "Most, if not all diseases vary in frequency according to the season of the year. With reference to scarlatina, puerperal fever, and erysipelas, much has been long made out in a vague way on this subject; and it is generally described as the injurious influence of cold, or of cold and inclement weather. The great paper, however, of Buchan and Arthur Mitchell has now reduced these views to a state of comparative exactness, which future researches on a more extended basis may complete, but will probably not correct. The jagged curves of the diagrams of these gentlemen may lose their irregular outline, but will probably remain substantially as now."

The diagram adapted from the elaborate work of Mr. Alexander Buchan and Sir Arthur Mitchell on "The Influence of Weather on Mortality from Different Diseases and at Different Ages,"† bearing on the variation of puerperal fever according to the season, to which Matthews Duncan

* 'Edinburgh Medical Journal,' vol. xxi, March, 1876, p. 774.

† 'Journal of the Scottish Meteorological Society,' 1875, p. 187.

refers, I here reproduce (Chart I). To avoid misapprehension it may be well to point out that the statistics upon which the diagram is based are those of the Registrar-General, that they refer exclusively to London, that they include the fatal cases only—it is a chart of mortality, not of morbidity,—and that they cover a period of twenty-seven years, from 1848 to 1874 inclusive.

I have prepared a table (Table I) giving the mean weekly death-rate from puerperal fever, from the weekly reports of the Registrar-General for the same period.

In thus using the data which the Registrar-General has supplied, at least one further observation is necessary. I quote the words of the aforementioned authorities upon this point. In their introduction they say, "We treat the deaths as having occurred in the weeks in which they are registered. No other course was possible, but we are of course aware that this is not quite correct, for registration usually follows death by some days. Indeed, the figures for the last week of every quarter leave little doubt that more than this sometimes happened, particularly up to 1858, and that a certain accumulation of entries was often recorded in these weeks. It is proper that these things should be borne in mind, but they do not in any important sense affect the results."

TABLE I.—*Mean weekly Death-rate in London, between the years* 1848 *and* 1874 *inclusive, from* Puerperal Fever.

Week.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
(1).....	**4·3**	**4·9**	**4·9**	3·4	3·9	3·4	2·5	2·6	2·4	3·5	3·9	**7·1**
(2).....	**4·9**	**4·7**	3·9	3·1	3·9	3·2	2·8	3·1	2·9	**4·6**	**5·9**	**4·5**
(3).....	**6·2**	**4·1**	**4·9**	3·4	3·2	**4·1**	3·1	2·6	3·0	**4·4**	**5·5**	**5·0**
(4).....	**4·8**	**4·7**	**4·1**	3·0	**4·1**	3·0	2·9	2·9	2·7	**4·2**	**5·2**	**5·4**
(5).....	...	...	**4·9**	...	...	3·0	...	...	**4·6**	...	...	**4·6**

Note.—The figures in dark type are above, those in ordinary type below, the mean—4·0.

Taken as it stands, however, this table shows a marked diminution in the death-rate from puerperal fever during the summer as compared with the winter months.

The result is graphically represented in the accompanying chart (Chart I). In order to show more distinctly the winter rise it has been reproduced in a duplicated form. It has been computed by adding together all the fatal cases registered during the several weeks of each month, and is expressed in percentages above and below the mean for each month, as given in the following table (Table II).

TABLE II.—*Death-rate in London from* Puerperal Fever *for twenty-seven years,* 1848 *to* 1874 *inclusive, in percentages above and below the mean.*

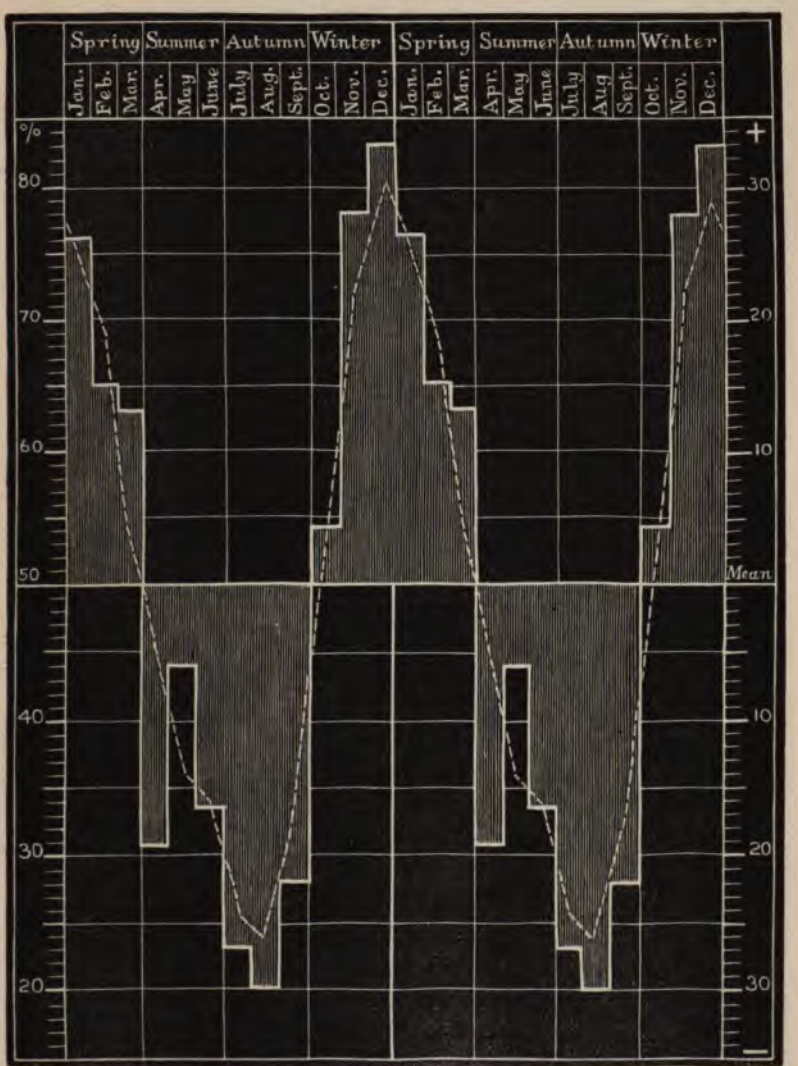
	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	76·2	65·2	63·2	30·8	44·3	33·6	23·0	20·0	28·0	54 5	78·0	83·0
Above the mean . .	26·2	15·2	13·2	...	...	...	...	...	...	4·5	28·0	33 0
Below the mean . .	...	...	...	19·2	5·7	16·4	27·0	30·0	22·0	...	...	...

It will be observed at a glance that during the summer months, from April to September inclusive, the death-rate is below, and during the winter months, from October to March inclusive, above the mean.

Professor Lusk enriches his article on "The Nature, Origin, and Prevention of Puerperal Fever," read at the International Medical Congress held at Philadephia, and published in the 'Transactions' * in 1876, with a paragraph headed "Season of the Year," in which he says, "I have in a special table classified all the deaths from metria in New York during nine years, according to the month in which they occurred, and from this it appears

* 'Transactions of the International Medical Congress,' Philadelphia, 1876, p. 829.

CHART I.—SEASON CURVE OF PUERPERAL FEVER OR METRIA.
London—Mortality. (*See Table* II.)
1848 *to* 1874.



Note.—The interrupted line running through the chart indicates the curve according to Bloxam's method. The full explanation and special use of this method will be given in the text descriptive of Chart VI. It serves to steady the curve. I subsequently decided on supplying it to all the charts (Table XXX).

that more than twice as many deaths took place between the six months from December to May inclusive as between the six months from June to November inclusive. The greatest mortality occurred in February and March, amounting to 499 cases, or rather more than one-fourth of the entire number. The smallest death-rate occurred in September and October, in which months but 150 deaths, or one-thirteenth of the entire number, took place."

This table (Table III) also I reproduce. It may be observed that it applies likewise to mortality only.

TABLE III.—*Deaths occurring in New York, between the years* 1867 *and* 1875 *inclusive, from* Metria, *excluding other causes, which proved fatal during the Puerperal Period.*

Year.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total deaths from metria.	Total from all causes.
1867	16	10	14	16	12	5	6	8	5	5	9	14	120	238
1868	17	14	27	16	18	9	12	8	7	3	8	12	151	267
1869	25	26	18	10	15	14	12	15	8	12	16	19	190	312
1870	12	17	37	27	20	10	12	16	10	12	11	17	201	333
1871	21	30	22	25	26	17	11	13	7	7	12	23	214	399
1872	26	37	41	40	27	21	14	24	13	14	18	32	307	503
1873	33	40	32	39	29	22	16	15	13	11	23	12	285	431
1874	19	32	24	33	34	21	18	15	10	7	7	25	245	439
1875	28	28	40	30	22	17	10	10	5	11	14	19	234	420
Total .	197	244	255	236	203	136	111	124	78	72	118	173	1947	3342

For purposes of comparison I have reduced the figures given in the above table to percentages above and below the mean, and represented the result in the form of a diagram (Chart II) in conformity with that of Buchan and Arthur Mitchell.

CHART II.—SEASON CURVE OF PUERPERAL FEVER OR METRIA.
New York—Mortality. (*See Table* IV.)
1867 *to* 1875.

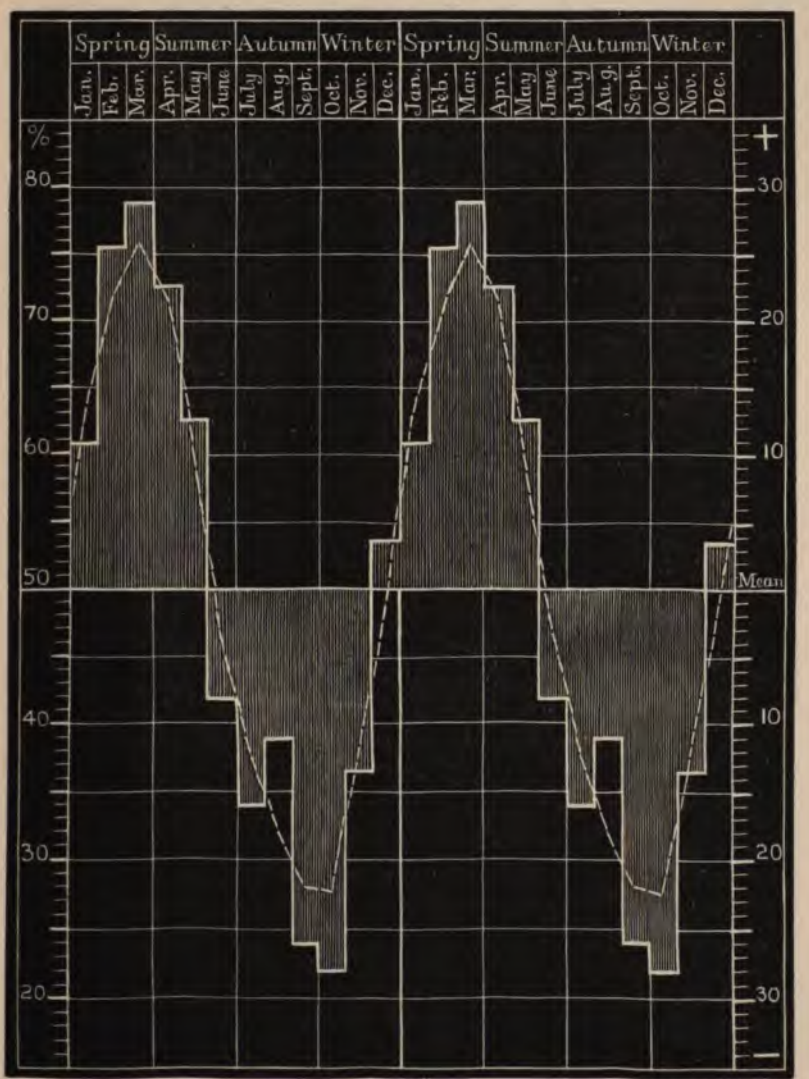


TABLE IV.—*Death-rate in New York from* Puerperal Fever *for nine years,* 1867 *to* 1875 *inclusive, in percentages above and below the mean.*

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	60·8	75·3	79·0	72·8	62·6	41·9	34·2	38·2	24·0	22·2	36·4	53·7
Above the mean . .	10·8	25·3	29·0	22·8	12·6	...	...	...	...	...	...	3·7
Below the mean . .	...	...	...	...	...	8·1	15·8	11·8	26·0	27·8	13·6	—

On comparing these two diagrams a very close correspondence may be observed in the curve of the two charts—a winter rise, a summer fall. Further, in Chart II, it may be noted that the rise and fall is delayed by as much as two months—a fact which at present I am content merely to note without seeking to offer an explanation. One broad fact is, however, established. In both hemispheres, the old and the new, in two points so widely separate as London and New York, the death-rate from puerperal fever steadily rises above the mean during the winter, and with equal stability falls below the average during the summer months.

I now proceed to show that a like variation in the death-rate from puerperal fever has occurred during the seven years, July, 1882, to June, 1889, inclusive, which have been specially dealt with in the previous part of my paper on "Fever in Childbed," and to which more extensive reference will be made in the present thesis.

With this object in view I have constructed a table (Table V) which gives the deaths for London from puerperal fever according to the returns of the Registrar-General for each quarter of these seven years, together with the number of children born alive for the corresponding period. By using the figures under the latter heading as a fairly reliable index of the number of deliveries, a more accurate result is obtained than if the number of deaths (as in Lusk's table) had alone been taken as a basis,—for

not only is the number of women delivered a variable factor, but the population also is subject to increase.

In order to bring this table into conformity with the charts given above, I have reduced the figures to percentages above and below the mean (Table VI), and expressed the result in diagrammatic form (Chart III) for each quarter of the year, again duplicating the chart, the better to show the winter rise.

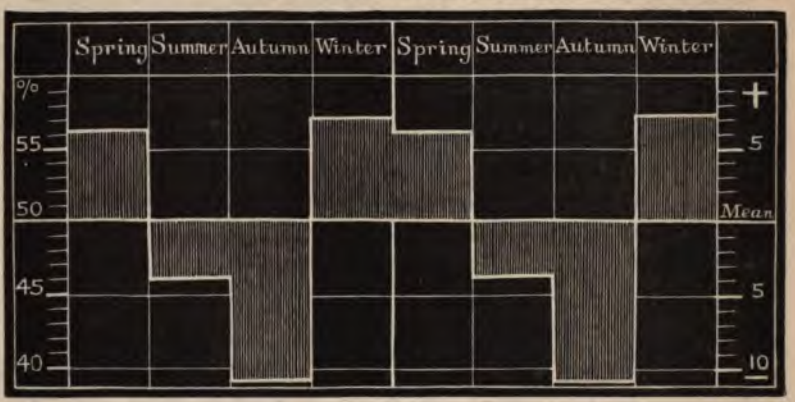
TABLE V.—*Registered Births of Children born Alive, and Deaths from* Puerperal Fever, *occurring in London, from July,* 1882, *to June,* 1889, *inclusive, for each Quarter of the Year.*

Year.	Births.				Deaths.			
	I. Spring.	II. Summer.	III. Autumn.	IV. Winter.	I. Spring.	II. Summer.	III. Autumn.	IV. Winter.
1882	...	...	32,604	33,172	...	...	61	100
1883	35,655	33,737	32,309	31,955	91	88	59	69
1884	34,894	33,814	32,833	35,944	98	59	50	120
1885	35,162	31,913	32,074	33,351	117	72	55	79
1886	35,477	32,980	32,743	32,500	66	65	69	79
1887	34,474	33,050	32,735	32,816	76	75	67	110
1888	34,368	32,584	31,698	32,430	133	63	38	41
1889	35,083	32,949	...	...	41	58	...	...
Total .	245,109	231,027	226,996	232,168	622	480	399	598

TABLE VI.—*Quarterly Death-rate in London from* Puerperal Fever, *for Seven Years, July,* 1882, *to June,* 1889, *in Percentages above and below the Mean.*

	I. Spring.	II. Summer.	III. Autumn.	IV. Winter.
Percentage .	56·4	46·2	39·1	57·3
Above the mean	6·4	...	...	7.3
Below the mean	...	3 8	10·9	...

CHART III.—SEASON CURVE OF PUERPERAL FEVER OR METRIA.
London—Mortality. (*See Table* VI.)
July, 1882, *to July*, 1889.



By adopting this quarterly division, the disturbance of the curve by additions arbitrarily inserted during the last week of each quarter is eliminated, and though at the same time the steady rise and gradual fall observed in the preceding charts is necessarily lost, and the maximum and minimum points curtailed, the main fact is as distinctly portrayed. The death-rate from puerperal fever is above the mean during the first and fourth quarters, and below the mean during the second and third quarters of the year.

Before dismissing the subject of mortality from puerperal fever, one other matter demands attention. It is a fact fully recognised at the Registrar-General's office that the registered death-rate from puerperal fever does not include all the cases, or even a proportionate number of the cases, which should by right come within the category. A certain and by no means inconsiderable proportion of fatal cases, in which death actually occurred from puerperal fever, is returned under other headings, and that even though for some years past special inquiries have, in all cases in which doubt as to their true nature

existed, been addressed from the office, with a view to making the return under this head more complete. This, for obvious reasons, applies more particularly to fatal cases returned under the head of "Accidents of Childbirth" —which, together with the fatal cases of puerperal fever, constitute the total puerperal mortality.

Considerable colour, were further proof wanting, is lent to this view by the season chart, based upon the returns under the head of "Accidents of Childbirth." These, except for their liability to be associated with puerperal fever, might reasonably be expected to give a record which would follow a dead level, and to present no such seasonal variation. As it is, however, the variation, though naturally less marked in degree, exactly corresponds in kind to that of puerperal fever.

I have constructed a table which gives the mean weekly death-rate from accidents of childbirth, from the weekly reports of the Registrar-General, practically for the same period* as that which deals separately with puerperal fever.

TABLE VII.—*Mean Weekly Death-rate in London, between the Years* 1845 *and* 1874 *inclusive, from* Accidents of Childbirth.

Week.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
(1) . .	**5·7**	**5·6**	**5·3**	4·7	4·9	5·0	4·4	5·0	**5·5**	4·7	**5·9**	**6·0**
(2) . .	**5·8**	5·1	**5·5**	4·8	**5·8**	4·8	**5·6**	4·4	5·1	**5·8**	5·0	**5·9**
(3) . .	**5·7**	**5·6**	4·9	4·6	4·3	4·8	4·4	4·6	5·2	**5·4**	**5·5**	**6·4**
(4) . .	**5·7**	**5·3**	**6·3**	**5·7**	4·6	4·5	4·2	**5·3**	4·8	**5·6**	**5·4**	**6·4**
(5) . .	...	...	**5·4**	...	...	4·6	...	...	5·0	...	...	**6·4**

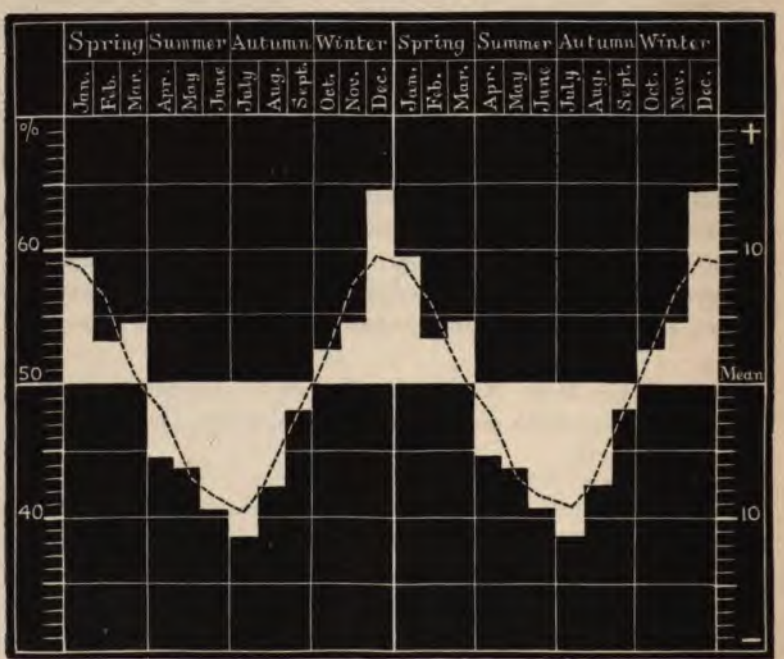
Note.—The figures in dark type are above, those in ordinary type below the mean—5·23.

This shows a manifest diminution in the death-rate attributed to accidents of childbirth during the summer as compared with the winter months. (Compare Table I.)

* This table is computed from the statistics of thirty years as compared with twenty-seven years. It begins three years earlier. For these years the statistics of puerperal fever are not separately available.

The result is graphically represented in the accompanying chart (Chart IV), which, as before, is duplicated, and expressed in percentages above and below the mean as given in the following table (Table VIII).

CHART IV.—SEASON CURVE OF ACCIDENTS OF CHILDBIRTH.
London—Mortality. (*See Table* VIII.)
1845 *to* 1874.



On comparing the two curves it is noticed that both the rise and the fall occur synchronously—the percentage rising in both cases above the mean during the six winter months from October to March inclusive, and sinking below the mean during the six summer months from April to September inclusive.

TABLE VIII.—*Death-rate in London from* Accidents of Childbirth, *for Thirty Years,* 1845 *to* 1874, *inclusive, in Percentages above and below the Mean.*

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	59·5	53·0	54·6	44·8	43·8	40·8	38·8	42·3	48·0	52·2	54·2	64·6
Above the mean . .	9·5	3·0	4·6	...	...	...	...	...	...	2·2	4·2	14·6
Below the mean . .	...	...	...	5·2	6·2	9·2	11·2	7·7	2·0	...	...	...

It will be necessary to refer to this matter again. For the present I may dismiss it with one remark. The omission of cases which should rightly fall within the category of deaths from puerperal fever, and the consequent diminution in the death-rate from that cause, in no way invalidates the conclusions which have been arrived at with regard to the influence of season on the death-rate of puerperal fever. On the contrary, if it could be rightly estimated, the full death-rate would but serve to intensify the difference observed.

Morbidity.

Hitherto the conclusions, as I have stated in the early part of this thesis, have been based on mortality statistics only. For other cases of illness of the same character, but unattended with a fatal result, no statistical record has been available. This want has been fully appreciated by Buchan and Mitchell, and finds expression in the following sentence :—

"The date of death or of registration does not show the date of falling ill, but we have no figures which reveal this; nor have we information as to the dates of those attacks of illness which are followed by recovery, and which very greatly exceed the attacks which end in death. Our investigation, indeed, is entirely confined to the in-

structive relations which exist between weather and deaths from different diseases; nor is it possible in the meantime to carry it further."

Though by the Infectious Diseases (Notification) Act of 1889, under which puerperal fever is included, machinery has lately been provided for the collection of statistics with regard to puerperal illness, which is not necessarily fatal; yet, owing to the wide-spread difference of opinion as to what should and what should not be included under the term "puerperal fever," especially when unattended with a fatal result, such data, even when obtained, would prove of less value than could be desired.

Much evidence as to the prevalence of illness generally may be deduced from the mortality records. I shall now, in order to carry the argument a step further than has been hitherto possible, make use of the data afforded by the General Lying-in Hospital. By this means I shall endeavour to supply the deficiency with regard to morbidity which has been already commented upon. I shall limit these data to the period covered by the statistics recorded in the first part of my paper on "Fever in Childbed," for that paper in itself is but the introductory one of a series upon which for some time I have been concentrating my attention. In that, as in a previous one on "Scarlatina during Pregnancy and in the Puerperal State,"* and another now in course of preparation, on "Erysipelas and some Zymotic Diseases in Lying-in Women," it has been my endeavour to unravel one by one the many knots in the tangled skein of doubt which surrounds the subject of febrile illness in childbed. In the present thesis the same unravelling process will be continued.

But, before resuming the thread of the argument, it will be desirable briefly to review the history of the hospital during the last few years, and to restate in succinct terms the character of the data upon which the annexed tables and charts have been based.

In the years which preceded the routine employment of

* 'Obstet. Trans.,' vol. xxx, 1888, p. 11.

antiseptics the amount of illness, and especially of septic illness, must have been very grave, for the death-rate (the only available guide to the condition of the hospital at that time) was invariably high, but presented great variations, and often indicated an appalling mortality.

For the last thirteen years the service of the hospital has been conducted upon Listerian principles, which, as they became better understood and more efficiently carried out in practice, were instrumental in reducing not only the mortality from so-called puerperal fever, but also the morbidity arising from septic processes to vanishing point. This point was reached in the middle of 1884. It was the work of some years.

At first absolute phenol alone was used, then for a time carbolic acid and Condy's fluid were regularly employed. Under this *régime* the death-rate declined considerably, and on the whole remained steadier. Cases of illness, and especially of septic illness, were, however, always present to a greater or less degree, but varied within wide limits, both as regards frequency and severity.

During the last few months of this carbolic and Condy era a steady and appreciable improvement took place, and in a marked degree with regard to the cases of a septic nature. This was due in part to the improved method of dealing with the antiseptic agents, and to the means taken to prevent their mutual destruction, and in part to a more systematic attention to points of general hygiene, particularly as regards the midwives and nurses.

When subsequently carbolic and Condy were replaced by sublimate solutions a further improvement was effected, and septicæmia disappeared entirely, at any rate for a time (the instances of its recurrence being few and, as a rule, far between and of slight intensity). The death-rate fell in a remarkable degree, and from that date until the present time the instances of illness have, generally speaking, been slight and unimportant, and in great part of an accidental character, whereas septicæmia has figured rarely.

Nevertheless during the sublimate era three cases have

died from the effects of septic infection; one in the short period during which douche solutions of weak sublimate were employed, and the remaining two in another short interval during which the sublimate douche was replaced by salufer. During this period also the other instances of illness suffered appreciable increase.

These points have each been considered in detail in the various sections of the previous paper on "Fever in Childbed."

Several examples of the introduction of zymotic poison have occurred, both during the time that septicæmia was still rampant and also since it has been practically stamped out. A single occurrence of erysipelas during the first period was attended with a striking increase of illness in other patients which, if not absolutely identical with, was indistinguishable from septicæmia in its clinical aspect. Scarlet fever several times occurred both before and after the elimination of septicæmia, and was attended during the first period with a slight but suggestive increase in illness of a similar septic nature, but during the second was productive of no appreciable ill effect beyond giving rise to cases of a more or less typical scarlatinal type.

And, finally, neither typhoid fever nor measles, a single instance of each of which occurred during the first period, seem to have produced any such effect.

These points are fully discussed in the two other papers to which reference nas been made. On account of the obvious liability of such accidental experiences as the introduction of erysipelas, scarlatina, and other zymotics, in addition to the alterations purposely introduced into the service, to affect the statistics upon which the present investigation is founded, a mention of them in this connection was inevitable, but the details cannot now be entered upon.

Individual instances of the injurious effect of foul air were now and again observed, but since the winter of 1882–3 no general increase in the amount or severity of illness has occurred during the winter months as compared with the summer.

This falls within the special domain of the present thesis. The statistics upon which the accompanying charts are based extend over a period of seven years, from July, 1882, to June, 1889, inclusive. They deal with no less than 2762 puerperæ who were delivered in the General Lying-in Hospital, under the care of Dr. John Williams, Dr. Champneys, Dr. Herman, Dr. Cullingworth, and myself.

This number, large as it is, is, however, none too large for statistical purposes. But some compensation may be derived from the fact that all the cases have been accurately observed and recorded, a daily note of each having been made at the bedside upon report papers provided with special printed headings which cover the previous history of the patient, especially as regards the menstrual and childbearing functions, together with the course of labour and of the lying-in period. From these elaborate reports, and from the temperature chart appended to each, the data have been compiled.

With reference to the thermometric observations, I desire to lay stress upon the fact that in each case the temperature was taken (by mouth) throughout the patient's stay in hospital every four hours, night as well as day, unless she happened to be asleep, and that any rise above 100° F. is reckoned fever. And wherever the line joining two consecutive observations crosses any section of the chart above this level, that section is included in the fever category, as if observations had been made continuously in every part of that line.

I may take occasion here to point out that had the thermometer been employed less assiduously, a large proportion of the pyrexia cases would have been eliminated, whereas under the plan adopted are included all the slight transitory rises of temperature (to 100·2° or thereabout) which, though indicated by the thermometer, are as a rule unattended by appreciable symptoms of illness. These, indeed, form by far the larger proportion of the pyrexia cases which have come under observation during the last five years dealt with in the charts. Unless this

fact be taken into consideration, an undue proportion of febrile cases would seem to have occurred.

Nor shall I rest content with a statement of the proportion of febrile to non-febrile cases. I shall take into consideration also the height and duration of the fever,—in other words, the severity of the illness. In the first part of my paper on "Fever in Childbed" I have given separate tables and charts of the height (in degrees above 100° F.) and duration (in days) of the fever, and have expressed the results in a condensed form as follows:— By multiplying together the percentage of labours followed by pyrexia, the duration (in days), and the height (in degrees above 100° F.) of the fever. it is possible to present a fairly correct index of the condition of the hospital as regards febrile illness for each month throughout the seven years. By moving the decimal point two places to the left the average amount of pyrexia from all causes per patient is derived. The figures thus obtained are very instructive, and, as an index of the condition of the hospital for each month, are not to be surpassed. But as it often happened that patients admitted towards the close of one month had little or no fever until the following month, and when the attack was prolonged the fever was continued into the month following admission and even later, this only represents approximately the fever rate for each patient admitted during the month to which it refers. It has, therefore, been placed under the heading of "Approximate Fever Rate;" in contra-distinction to the "True Fever Rate," that is to say, the average amount of pyrexia (in days × degrees above 100° F.) for each patient admitted during the same time.

The "Septic Rate" corresponds to the "True Fever Rate," but bears reference to cases of septicæmia and of febrile inflammation only, and consequently represents the average amount of septic fever for each patient admitted during the same time. Further, I may take occasion here to mention that a certain amount of doubt necessarily attaches to the septic data, owing to the difficulty in

deciding as to the precise cause of the fever in some of the cases. But every care has been exercised to render this division as complete as possible, both by personal observation and by a studied perusal of the full report of each individual case. It may also be noted that all cases which presented signs of inflammation in the pelvis, whatever view may be held as to the nature of such in individual instances, are included in the septic category. At the same time I may say that no doubt attaches to the general pyrexia data, which are based on facts involving no diagnostic skill.

With these prefatory remarks I would now direct attention to the following table (Table IX), which gives the number of patients delivered, of those who had septic fever (septicæmia and pelvic inflammation), of those who had fever from other causes, and from all causes combined in the General Lying-in Hospital, from July, 1882, to June, 1889, inclusive.

TABLE IX.—*Number of Patients delivered, of those who had* Septic Fever (*Septicæmia and Pelvic Inflammation*), *of those who had* Fever from other Causes, *and from* all Causes combined, *in the General Lying-in Hospital, from July,* 1882, *to June,* 1889, *inclusive.*

(1) *Number of Patients delivered.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1882	...	...	...	...	...	...	34	31	31	23	32	26	(117)
1883	34	24	32	31	23	31	27	31	30	29	33	16	341
1884	27	17	21	29	19	27	33	34	30	34	28	35	334
1885	33	28	30	30	26	38	27	37	38	36	28	40	391
1886	21	22	40	28	36	34	39	32	33	27	36	34	382
1887	32	29	33	31	26	23	34	43	44	35	34	39	403
1888	47	28	46	36	36	38	50	47	44	45	39	39	495
1889	42	35	50	33	36	43	...	...	...	...	...	...	(239)
Total	236	183	252	218	202	234	244	255	250	229	230	229	2762

(2) *Septic Fever.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1882	...	...	...	...	...	...	13	17	14	14	17	18	(93)
1883	22	14	19	13	14	7	8	12	12	9	10	5	145
1884	4	2	1	3	0	0	0	0	1	0	0	1	12
1885	0	2	1	2	2	2	1	1	1	1	1	1	15
1886	0	2	3	0	0	2	0	1	0	1	0	3	12
1887	1	5	0	2	2	0	0	1	0	0	0	2	13
1888	2	0	1	1	0	0	0	0	3	2	1	0	10
1889	0	1	0	0	0	0	...	...	...	...	...	...	(1)
Total	29	26	25	21	18	11	22	32	31	27	29	30	301

(3) *Fever from other Causes.*

Year.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1882	...	...	...	...	...	...	11	12	14	8	13	7	(65)
1883	7	8	12	15	8	16	11	14	17	12	13	8	141
1884	15	10	13	16	7	13	15	17	8	14	11	3	142
1885	11	7	10	11	11	18	11	14	17	10	12	23	155
1886	9	8	13	14	18	17	15	15	12	13	24	7	165
1887	11	8	9	12	5	13	16	20	15	15	8	18	150
1888	22	12	13	21	13	21	23	23	23	19	5	9	204
1889	7	7	11	6	17	10	...	...	...	...	...	...	(58)
Total	82	60	81	95	79	108	102	115	106	91	86	75	1080

(4) *Fever from all Causes combined.*

Year.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1882	...	...	...	...	...	...	24	29	28	22	30	25	(158)
1883	29	22	31	28	22	23	19	26	29	21	23	13	288
1884	19	12	14	19	7	13	15	17	9	14	11	4	154
1885	11	9	11	13	13	20	12	15	18	11	13	24	170
1886	9	10	16	14	18	19	15	16	12	14	24	10	177
1887	12	13	9	14	7	13	16	21	15	15	8	20	163
1888	24	12	14	22	13	21	23	23	26	21	6	9	214
1889	7	8	11	6	17	10	...	...	...	...	...	...	(59)
Total	111	86	106	116	97	119	124	147	137	118	115	105	1381

Among this number (*i. e.* 2762) 15 deaths occurred. In 9 cases the illness was essentially of a septic nature, but in the remaining 6 septicæmia played no part. They are given in the order of their occurrence as follows:

(*Note.*—The numbers i, ii, iii, &c., refer to the day of the puerperium.)

1. Admitted November 19th, 1885. High fever, iii onwards. Died xiii, December 3rd.

Post-mortem.—Pyometritis, pelvic peritonitis, and septic phlebitis.

2. Admitted December 30th, 1882. High fever, ii onwards. Died ix, January 8th.

Post-mortem.—Severe traumatic inflammation, ending in abscess and purulent peritonitis.

3. Admitted May 5th, 1883. High fever, ii onwards. Died xxii, May 26th.

General septic infection.

4. Admitted May 10th, 1883. Fever irregular, generally slight, ii onwards. Died xxiv, June 2nd.

Post-mortem.—Septic phlebitis and acute endocarditis.

5. Admitted December 23rd, 1883. High fever, iii—ix, slight irregular rises after. Died xvii, January 8th.

Post-mortem.—Traumatic hæmatoma ending in abscess, pyolymphangitis, perimetritis, and parametritis.

6. Admitted January 23rd, 1884. Slight fever, ii—ix, high after. Died xxxiv, March 27th.

Post-mortem.—Pyometritis, septic phlebitis, and acute endocarditis.

7. Admitted March 2nd, 1885. Moderate fever throughout. Died ix, March 11th.

Advanced phthisis.

8. Admitted April 14th, 1885. Moderate fever throughout. Died vi, April 22nd.

Post-mortem.—Advanced phthisis.

9. Admitted August 22nd, 1885. Normal temperature throughout. Died xvi, September 7th.

Post-mortem.—Mercurialism and morphism.

10. Admitted October 1st, 1885. Slight irregular fever, iv—viii, high from ix. Died xviii, October 19th.

Post-mortem.—Septic phlebitis and general pyæmia.

11. Admitted November 26th, 1886. Moderate fever, i—iii, high v. Died vi, December 1st.

Post-mortem.—Eclampsia.

12. Admitted October 19th, 1887. High irregular fever throughout. Died iii, October 31st.

Post-mortem.—Eclampsia.

13. Admitted September 2nd, 1888. Moderate fever, iii onwards. Died xxii, September 23rd.

Post-mortem.—Sloughing of soft parts and parametritic abscess.

14. Admitted October 4th, 1888. Irregular moderate fever, iii onwards. Died ix, October 12th.

Post-mortem.—Hospital gangrene.

15. Admitted June 27th, 1889. Normal temperature. Died i, June 27th.

Hæmorrhage (accidental and post-partum).

These deaths were distributed according to the months of the year in which they took place (see Table X) as follows:

TABLE X.—*Deaths from* Puerperal Fever *and from* other Causes, *occurring in the General Lying-in Hospital, for Seven Years, July,* 1882, *to June,* 1889, *inclusive.*

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Puerperal fever .	2	...	1	...	1	1	...	...	1	2	...	1	9
Other causes .	...	...	1	1	...	1	...	...	1	1	...	1	6
All causes	2	0	2	1	1	2	0	0	2	3	0	2	15

The number of deaths is obviously too small to allow any definite conclusion to be drawn from them alone, but, so far as it goes, the evidence afforded by this table is in

entire accord with the conclusions which have been drawn with regard to the excessive mortality from puerperal fever in the winter as compared with the summer months. Of the nine deaths from puerperal fever, six occurred during the winter as compared with three only during the summer. In this particular respect, therefore, the death-rate afforded by the General Lying-in Hospital is found to correspond in the main with that of London generally.

The cases of febrile illness call for more extended comment.

In order to place morbidity on a basis similar to that of mortality, I have constructed the morbidity tables which follow from the figures given in Table IX. The first of these (Table XI) gives the mean percentage of patients in the General Lying-in Hospital, lying in during each month of the year, for the seven years, July, 1882, to June, 1889, inclusive, who had septic fever, *i. e.* febrile illness due to septicæmia or pelvic inflammation.

TABLE XI.—*Mean Monthly Percentage of Puerperæ in the General Lying-in Hospital, from July,* 1882, *to June,* 1889, *inclusive, who had* Septic Fever (*Septicæmia and Pelvic Inflammation*).

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
12·2	**14·2**	9·9	9·6	8·9	4·7	9·0	**12·5**	**12·4**	**11·7**	**12·6**	**13·1**

Note.—The figures in dark type are above, those in ordinary type below the mean—10·8.

This table shows the increased prevalence of cases of septicæmia and pelvic inflammation during the months ranging from August to February inclusive, as compared with the remaining months of the year.

In order that this result might be rendered strictly comparable to that in the tables and charts given under the head of mortality, I have reduced the figures to percentages above and below the mean (Table XII), and represented the result in diagrammatic form (Chart V).

CHART V.—SEASON CURVE OF SEPTICÆMIA AND PELVIC INFLAMMATION IN CHILDBED.

General Lying-in Hospital—Morbidity. (*See Table* XII.)

July, 1882, *to June*, 1889.

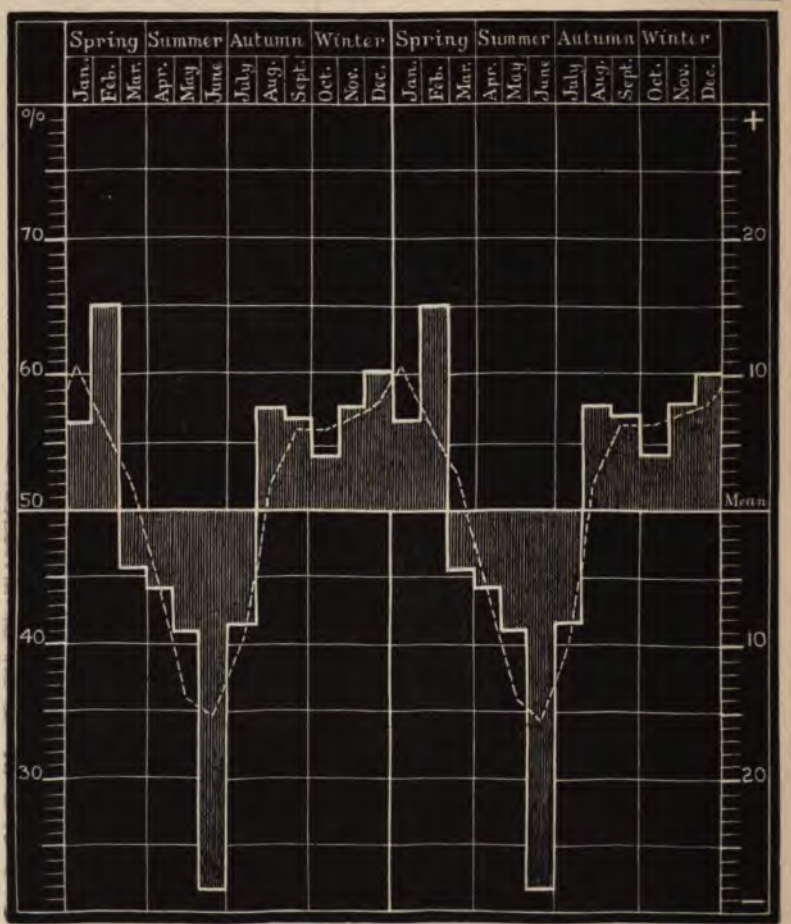


TABLE XII.—*Fever-rate from* Septicæmia and Pelvic Inflammation, *in the General Lying-in Hospital, for seven years, July,* 1882, *to June,* 1889, *inclusive, in percentages above and below the mean.*

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	56·3	65·1	45·5	44·1	40·8	21·5	41·3	57·5	56·8	54·0	57·8	60·1
Above the mean . .	6·3	15·1	...	...	...	...	...	7·5	6·8	4·0	7·8	10·1
Below the mean . .	...	...	4·5	5·9	9·2	28·5	8·7	...	...	...	...	...

The curve corresponds in essential particulars with that given by the mortality charts. But inasmuch as, on the one hand, the deaths are placed not necessarily in the month in which death took place, but in that during which registration was effected, and, on the other, the cases of illness are placed not necessarily in the month in which the illness began, but in that in which the patient was delivered, and, further, as death in such cases follows the beginning of the illness by some weeks or even months, the rise and fall both take place, as under such circumstances might be expected, a month or so earlier in the morbidity than in the mortality chart.

Bearing this in mind, it may be concluded from the above chart that the cases of septicæmia and pelvic inflammation in the General Lying-in Hospital serve to substantiate the evidence which has been deduced from the mortality tables as to the increased prevalence of puerperal fever during the winter as compared with the summer months.

I desire, however, to carry the examination of this subject a step further. Inspection of Table IX (2) reveals the fact that five sixths of the cases of septicæmia and pelvic inflammation occurred during the first twenty-two months with which the table deals, the other sixth being distributed over the remaining sixty-two months. Into

the cause of this difference I will not enter now; the subject was discussed in detail under the heading of "General Hygiene and Antisepsis," in Part I of my paper "Fever in Childbed," and I have already mentioned the broad facts associated with it. But recognising this marked difference in the two periods, I would inquire separately into the seasonal prevalence of septic illness during each of them, and ascertain whether the variation has been constant. With this object I have constructed the following tables and chart, similar to the above, but dealing with each period separately.

The following table (Table XIII) gives the mean percentage of patients in the General Lying-in Hospital, lying in during each month of the year (1) from July, 1882, to April, 1884, and (2) from May, 1884, to June, 1889, who had fever attributable to septicæmia or pelvic inflammation.

TABLE XIII.—*Mean monthly Percentage of Puerperæ who had* Septic Fever (*septicæmia and pelvic inflammation*) *in the General Lying-in Hospital for each of the two periods,* (1) *from July,* 1882, *to April,* 1884, *inclusive, and* (2) *from May,* 1884, *to June,* 1889, *inclusive.*

(1) *July,* 1882, *to April,* 1884.

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
42·6	39·0	37·7	26·6	**60·8**	22·5	34·4	**46·7**	**42·6**	**44·2**	**41·5**	**54·7**

Note.—The figures in dark type are above, those in ordinary type below, the mean—40·5.

(2) *May,* 1884, *to June,* 1889.

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1·7	**7·0**	**2·5**	**3·1**	**2·2**	**1·9**	**·5**	**1·5**	**2·6**	**2·2**	**2·6**	**3·7**

Note.—The figures in dark type are above, those in ordinary type below, the mean—2·4.

On examining this table, in the first part a remarkable feature is presented in the excessive prevalence of septic

illness during the month of May, which stands out with special prominence from the months which precede and which follow. In this connection, and by way of explanation, I must so far trench upon my at present unpublished work on the relation of erysipelas to febrile illness in childbed as to mention that during this month of May erysipelas prevailed, and was attended, as I have already taken occasion to remark, with a striking increase of illness, which, if not identical with, was indistinguishable from, septicæmia in its clinical aspect. This feature may be noticed running through all the morbidity tables and charts which deal with the subject of septicæmia and pelvic inflammation during this period, and will consequently necessitate further reference. In the present instance, if due allowance be made on this account, it would appear that from August to January inclusive septic illness is more prevalent than during the remainder of the year.

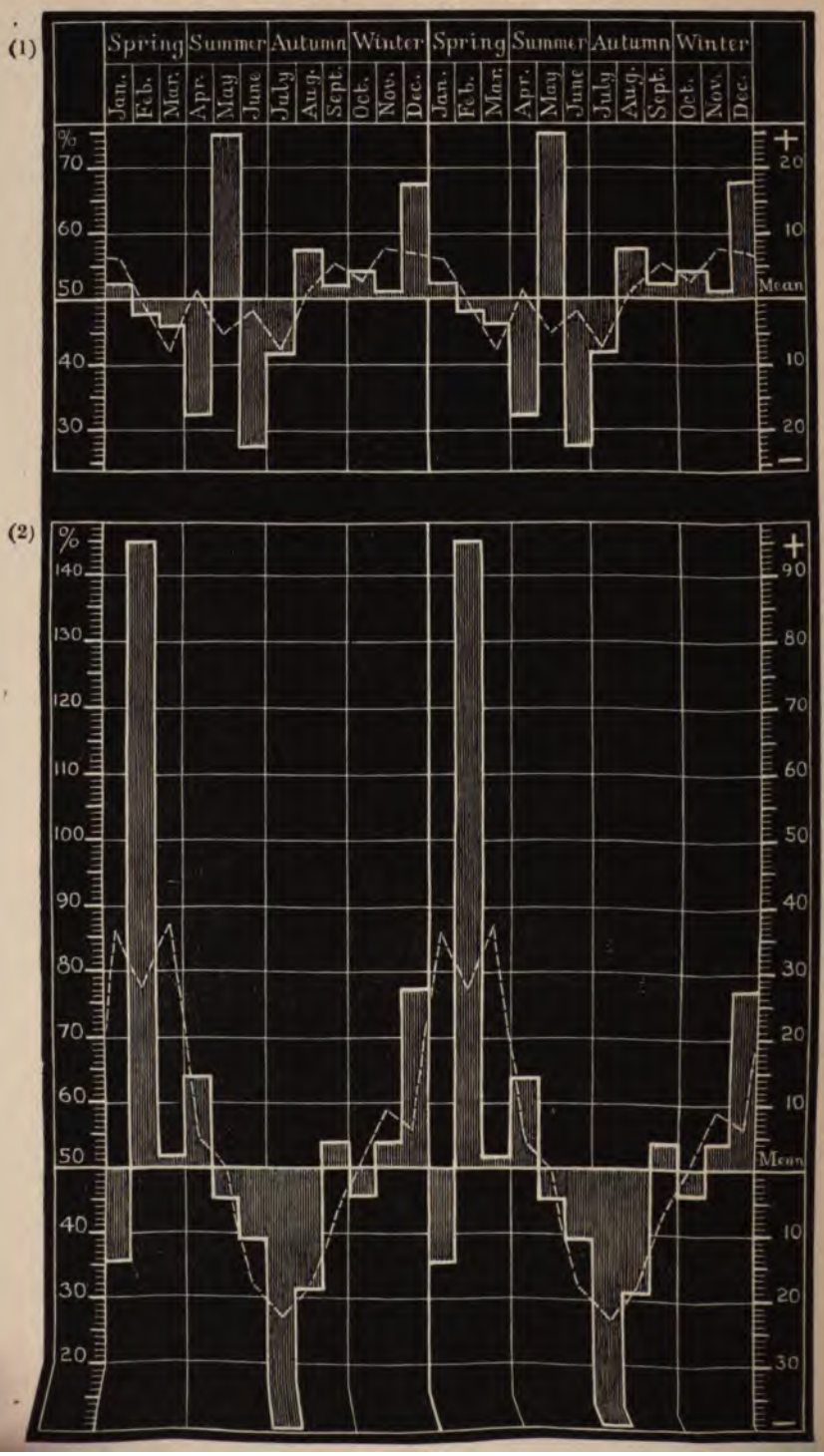
In the second part of the table no such persistent variation can be traced—which may be accounted for by the comparatively small number of cases upon which it is based; but in this, again, the figures tend to show that septicæmia and pelvic inflammation are far less prevalent during the summer months. In order to place these deductions on a basis similar to those given above, I have reduced the figures to percentages above and below the mean (Table XIV), and expressed the result in the form of a chart (Chart VI).

In the upper division of the chart the rise associated with the prevalence of erysipelas during the month of May is rendered obvious, as is also the declension of the curve below the mean generally during the early summer months. I may point out that this unusual elevation of the curve during the month of May tends in no small degree to raise the mean unduly, and therefore, in order to make due allowance, the mean line should be considerably depressed in the chart. I have, however, thought it better to give the result as it stands with this explanation

CHART VI.—SEASON CURVE OF SEPTICÆMIA AND PELVIC INFLAMMATION IN CHILDBED.

General Lying-in Hospital—Morbidity. (*See Table* XIV.)

(1) *July*, 1882, *to April*, 1884; (2) *May*, 1884, *to June*, 1889.



than to make any artificial attempt, which at the best would be imperfect, to rectify it.

TABLE XIV.—*Mean monthly Proportion of Puerperæ who had* Septic Fever (*septicæmia and pelvic inflammation*) *in the General Lying-in Hospital for each of the two periods,* (1) *from July,* 1882, *to April,* 1884, *inclusive, and* (2) *from May,* 1884, *to June,* 1889, *inclusive, in percentages above and below the mean.*

(1) *July,* 1882, *to April,* 1884.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	52·5	48·1	46·5	32·8	75·0	27·7	42·4	57·6	52·5	54·5	51·2	67·5
Above the mean . .	2·5	...	...	...	25·0	...	...	7·6	2·5	4·5	1·2	17·5
Below the mean . .	...	1·9	3·5	17·2	...	22·3	7·6	...	...	...	...	...

(2) *May,* 1884, *to June,* 1889.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	35·4	145·8	52·0	64·5	45·8	39·5	10·4	31·2	54·1	45·8	54·1	77·0
Above the mean . .	...	140·8	2·0	14·5	...	...	...	...	4·1	...	4·1	27·0
Below the mean . .	14·6	...	...	...	4·2	10·5	39·6	18·8	...	4·2	...	...

In the lower division of the chart, where due allowance is made for the irregularities of the curve incidental to the comparatively small number of cases upon which it is based, the increased prevalence of septicæmia and pelvic inflammation during the winter months is indicated by an elevation of the curve above the mean. The interrupted line running through this division of the chart represents the curve according to Bloxam's method, which is especially adapted to steady the curve where a comparatively

small number of cases is taken as a basis. This method consists in taking not the single average for each particular month which it is desired to represent, but the mean of the average for that particular month, for the month preceding, and for the month which follows. By this method the inequalities of the curve, as in the present instance, are rounded off, and a close approximation is attained to the curve which would result from more extensive data. This method will be employed again where necessary.

The above morbidity charts represent only the proportion of septic to non-septic cases. No allowance has hitherto been made for the severity of the illness. In the following tables and charts not only is the proportion of septic to non-septic cases represented, but both the height and duration of the fever have been taken into account. In this way the severity of the illness also receives expression. But owing to the fact that among these septic cases are included some which ended fatally, and others which on account of prolonged illness were transferred to other hospitals, the severity of the illness does not always find full expression, for in the one case the fever is cut short by death, and in the other breaks off when the transfer of the patient is effected.

With this limitation, therefore, the following tables and charts fairly accurately represent the amount of septic illness.

The following table (Table XV) gives the average amount of septic fever for each patient delivered in the General Lying-in Hospital during each month of the whole seven years.

As the septic rate has been subject to so great variation during this period, particularly in the months which preceded, in comparison with those which followed, the substitution of sublimate solution, at the beginning of May, 1884, for carbolic acid and Condy's fluid as the general antiseptic employed, I have struck the average for each year. It will be observed that during the early

TABLE XV.—Septic Rate, *i. e. the average amount of* Septic Fever (*in days* × *degrees above* 100° *F.*) *per patient delivered during each month in the General Lying-in Hospital for seven years, July,* 1882, *to June,* 1889, *inclusive.*

Year.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average for year.
1882	...	...	...	...	...	...	8·00	**19·51**	14·06	**18·56**	15·81	**19·61**	15·92
1883	**15·94**	**15·70**	**18·28**	11·74	**22·95**	11·29	**15·37**	12·41	11·06	**15·86**	3·42	6·31	13·36
1884	5·92	**10·41**	3·33	**12·00**	...	...	...	...	...	...	...	...	7·91
„	...	...	...	...	0·00	0·00	0·00	0·00	**0·43**	0·00	0·00	0·05	0·06
1885	0·00	0·85	**1·56**	**1·40**	**3·96**	0·34	**4·66**	0·24	0·44	0·97	0·35	0·35	1·26
1886	0·00	**0·72**	**1·05**	0·00	0·00	**0·70**	0·00	0·28	0·00	**0·48**	0·00	**1·41**	0·38
1887	**0·53**	**3·12**	0·00	**0·64**	**1·25**	0·00	0·00	**0·53**	0·00	0·00	0·00	0·20	0·52
1888	**0·53**	0·00	**0·56**	**0·36**	0·00	0·00	0·00	0·00	**1·86**	**0·73**	0·17	0·00	0·35
1889	0·00	0·11	0·00	0·00	0·00	0·00	...	...	...	...	...	...	0·01

Note.—The figures in dark type are above, those in ordinary type below the average for each year.

period the amount of septic fever was twice as frequently above the average during the winter as compared with the summer months. This variation is by no means constant during the later period.

In the following table (Table XVI) the mean septic rate for each month of the year during the two periods is given in relation to the mean for the whole of each period.

TABLE XVI.—*Mean Septic Rate, i. e. the average amount of Fever (in days × degrees above* 100° *F.) from* Septicæmia and Pelvic Inflammation *per patient delivered during each month in the General Lying-in Hospital for each of the two periods,* (1) *from July,* 1882, *to April,* 1884, *inclusive; and* (2) *from May,* 1884, *to June,* 1889, *inclusive.*

(1) *July,* 1882, *to April,* 1884.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
10·93	**13·05**	10·80	11·87	**22·95**	11·29	11·68	**15·96**	12·56	12·21	9·61	**12·96**

Whole period.
12·61

(2) *May,* 1884, *to June,* 1889.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
0·21	0·36	**0·63**	**0·48**	**0·86**	0·17	**0·93**	0·21	**0·54**	0·43	0·10	0·40

Whole period.
0·44

Note.—The figures in dark type are above, those in ordinary type below the mean for each period.

The first part of this table shows no distinctive variation in the septic rate according to season, even when allowance be made for displacement of the mean by the unusual rise during the month of May.

The second part of the table bears evidence against an increased septic rate during the winter months.

In the following table (Table XVII) this result has been reduced to percentages above and below the mean. It is also expressed in diagrammatic form (Chart VII).

TABLE XVII.—*Mean Septic Rate, i. e. the average amount of Fever (in days × degrees above* 100° *F.) from* Septicæmia and Pelvic Inflammation *per patient delivered during each month in the General Lying-in Hospital for each of the two periods,* (1) *from July,* 1882, *to April,* 1884, *inclusive; and* (2) *from May,* 1884, *to June,* 1889, *inclusive, in percentages above and below the mean.*

(1) *July,* 1882, *to April,* 1884.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	43·3	51·7	42·8	47·0	90·9	44·7	46·3	63·2	49·7	48·3	38·1	51·3
Above the mean . .	...	1·7	...	...	40·9	...	...	13·2	...	...	...	1·3
Below the mean . .	6·7	...	7·2	3·0	...	5·3	3·7	...	·3	1·7	11·9	...

(2) *May,* 1884, *to June,* 1889.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	23·6	40·1	70·6	53·1	96·7	19·3	103·8	23·3	60·8	48·5	11·5	44·7
Above the mean . .	...	...	20·6	3·1	46·7	...	53·8	...	10·8	...	...	...
Below the mean . .	26·4	9·9	...	...	...	30·7	...	26·7	...	1·5	38·5	5·3

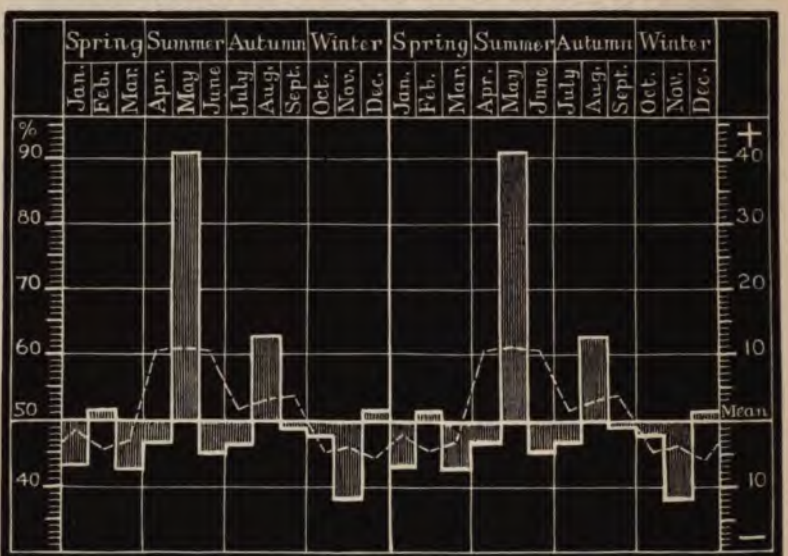
The only distinctive feature in the upper division of the chart is the extraordinary rise during the month of May.

The lower division, where due allowance is made for the irregularity of its curve, shows a decline in the amount and severity of septic illness during the winter and spring, and an irregular rise during the summer and autumn months.

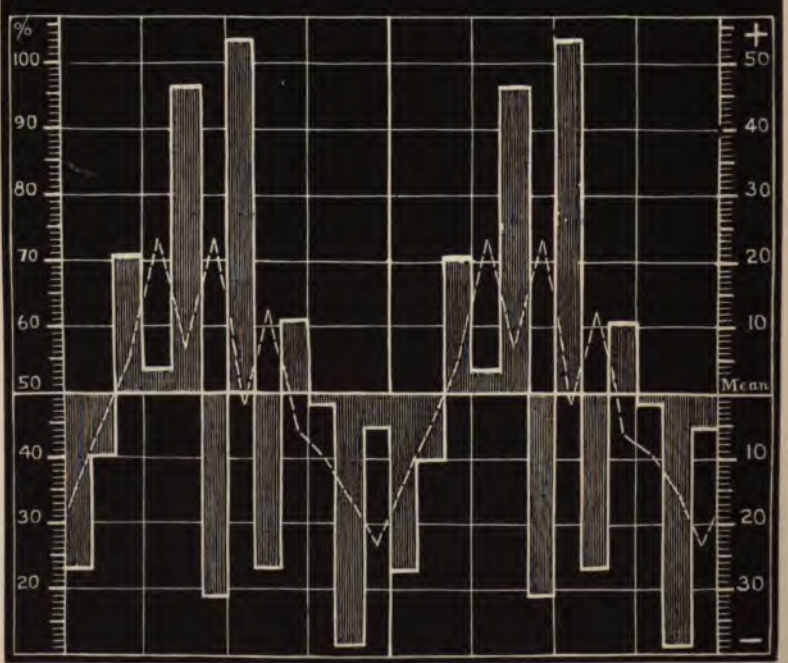
On comparing the curves given both by the upper and lower divisions of the two charts (Charts VI and VII) it appears that, though cases of septicæmia and pelvic in-

CHART VII.—SEASON CURVE OF SEPTICÆMIA AND PELVIC INFLAMMATION (INCLUDING SEVERITY OF ILLNESS) IN CHILDBED.
General Lying-in Hospital—Morbidity. (*See Table* XVII.)
(1) *July*, 1882, *to April*, 1884; (2) *May*, 1884, *to June*, 1889.

(1)



(2)



flammation are of more frequent occurrence during the winter as compared with the summer months, when the amount of fever is also taken into consideration, no such difference is found to exist. There are no elements of variation in the date of death or of the removal of patients from the hospital which would so affect the fever record as to account for this. It would seem, therefore, that if the amount of fever may be taken as an index of the severity of the illness, such cases, though more prevalent, are less severe during the winter. The converse of this holds good for the summer months.

Now, without such additional evidence of the increased prevalence of septic illness during the winter as I have adduced from morbidity records, it might be urged that increased fatality of such cases, rather than increased prevalence of such illness, would serve to render the mortality excessive during the winter as compared with the summer months. This evidence, however, more than negatives such suggestion. Inasmuch as Chart VII represents the comparative extent of illness (as gauged by the fever), not in respect of each case of septicæmia or pelvic inflammation, but of each patient delivered in the hospital, the difference recorded is very striking and suggestive. And though, as I shall presently explain, this difference is subject to discount on the score of accidental association with other causes of fever (many instances of which would be masked by the more serious septic illness), these accidental causes would certainly prove insufficient in themselves to subvert the curve, and to turn the winter rise in the proportion of septic to non-septic cases into a fall when the severity of the illness is also taken into consideration.

I now proceed to a consideration of the record of febrile illness due to causes other than septicæmia and pelvic inflammation. This heterogeneous collection is composed principally of trivial cases of illness, such as local irritation of the bowels, bladder, and breasts, nervous excitement, and so forth, with a smaller number of

complications, many of them purely accidental in character, such as scarlatina, rheumatic fever, phthisis, pleurisy, nephritis, eclampsia.

I have mentioned that, owing to the difficulty in deciding as to the precise cause of the fever in some of the cases, doubt necessarily attaches to the septic data upon which the foregoing charts have been founded. At the same time I pointed out that every care has been exercised to render this division of the cases as complete and accurate as possible. In order to test this matter, I followed the same plan as that adopted with reference to accidents of childbirth under the head of mortality. If cases of septic illness have been overlooked, they would serve to swell the list of other febrile cases, and, in consequence, might be expected to influence the curve given by such other cases in a similar manner to that of cases recognised as depending on septicæmia and pelvic inflammation. But this expectation is by no means warranted by the actual facts.

The following table (Table XVIII) gives the mean percentage of patients in the General Lying-in Hospital, lying in during each month of the year, for the whole period of seven years, who had fever which was regarded as being due to some other cause than septicæmia or pelvic inflammation.

TABLE XVIII.—*Mean Monthly Percentage of Puerperæ in the General Lying-in Hospital from July*, 1882, *to June*, 1889, *inclusive, who had fever from* causes other than Septicæmia and Pelvic Inflammation.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
34·7	32·7	32·1	**43·5**	39·1	**46·1**	**41·8**	**45·0**	**42·4**	**39·7**	37·3	32·7

Note.—The figures in dark type are above, those in ordinary type below the mean—39·1.

This table shows that an apparent diminution in the number of febrile cases (excluding septicæmia and pelvic inflammation) occurred during the months from April to

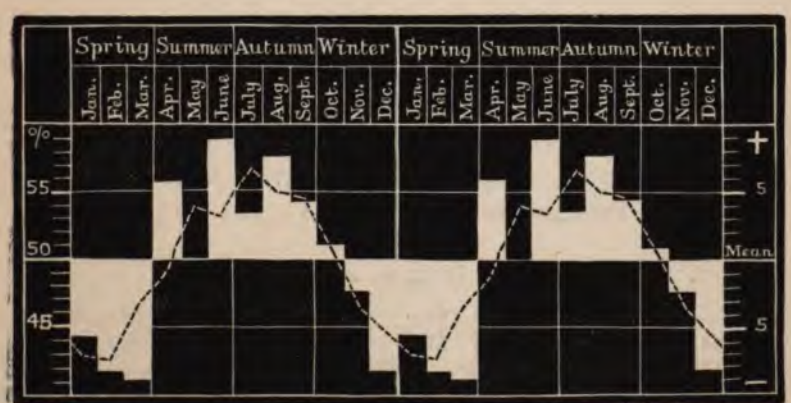
October inclusive as compared with the remaining months of the year.

In the following table (Table XIX) the result is expressed in percentages above and below the mean, and is graphically represented in the accompanying chart (Chart VIII).

TABLE XIX.—*Fever-rate from* causes other than Septicæmia and Pelvic Inflammation, *in the General Lying-in Hospital for seven years, July,* 1882, *to June,* 1889, *inclusive, in Percentages above and below the mean.*

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	44·4	41·9	41·1	55·7	50·0	59·0	53·4	57·6	54·2	50·8	47·7	41·8
Above the mean . .	...	...	...	5·7	...	9·0	3·4	7·6	4·2	·8	...	...
Below the mean . .	5·6	8·1	8·9	...	...	...	...	...	...	...	2·3	8·2

CHART VIII.—SEASON CURVE OF FEBRILE ILLNESS OTHER THAN SEPTICÆMIA AND PELVIC INFLAMMATION IN CHILDBED.
General Lying-in Hospital—Morbidity. (*See Table* XIX.)
July, 1882, *to June,* 1889.



The curve rises above the mean during the summer and autumn, and declines below the mean during the winter and spring. It is in every respect the very reverse of that given by the septic record (compare Chart V).

On this evidence alone this seasonal variation might, however, be more apparent than real. For, supposing a considerable proportion of the cases of septicæmia and pelvic inflammation to have suffered also from a certain amount of fever due to extraneous causes—as in many cases was known to have actually occurred—they, being included in the septic and not in this category, would serve to diminish the proportion of cases of non-septic illness, particularly during those months in which septicæmia and pelvic inflammation were most prevalent. Consequently, granted the seasonal variation in the prevalence of septic illness, precisely such an inverted curve as the above might be given even though cases of febrile illness depending on other conditions were evenly distributed throughout the year.

The following tables (Tables XX and XXI) and chart (Chart IX) similarly express for each month of the year the proportion of puerperæ who had fever due to some other cause than septicæmia or pelvic inflammation in each of the two periods, and are open to similar criticism.

TABLE XX.—*Mean Monthly Percentage of Puerperæ who had Fever from* Causes other than Septicæmia and Pelvic Inflammation *in the General Lying-in Hospital for each of the two periods,* (1) *from July,* 1882, *to April,* 1884, *inclusive; and* (2) *from May,* 1884, *to June,* 1889, *inclusive.*

(1) *July,* 1882, *to April,* 1884.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
36·0	**43·9**	**47·1**	**51·6**	34·7	**51·6**	36·0	41·9	**50·8**	38·4	40·0	35·7

Note.—The figures in dark type are above, those in ordinary type below the mean—42·4.

(2) *May*, 1884, *to June*, 1889.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
34·2	29·5	28·1	**40·5**	**39·6**	**45·3**	**43·7**	**46·1**	**39·6**	**40·1**	34·8	32·1

Note.—The figures in dark type are above, those in ordinary type below the mean—38·1.

TABLE XXI.—*Mean Monthly Proportion of Puerperæ who had Fever from* Causes other than Septicæmia and Pelvic Inflammation *in the General Lying-in Hospital for each of the two periods,* (1) *from July,* 1882, *to April,* 1884, *inclusive, and* (2) *from May,* 1884, *to June,* 1889, *inclusive, in percentages above and below the mean.*

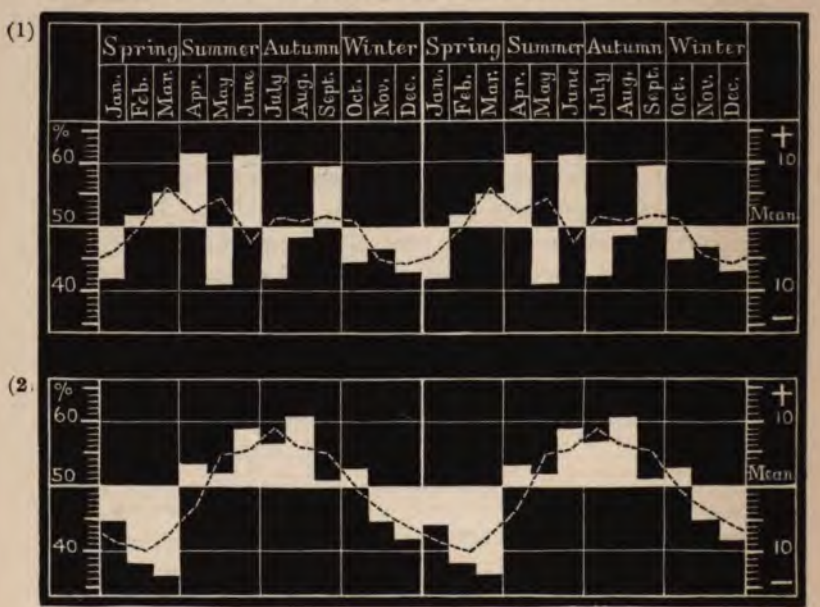
(1) *July*, 1882, *to April*, 1884.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	42·4	51·7	55·5	60·8	40·9	60·8	42·4	49·4	59·9	45·2	47·1	43·2
Above the mean . .	...	1·7	5·5	10·8	...	10·8	...	...	9·9	...	...	...
Below the mean . .	7·6	...	...	...	9·1	...	7·6	·6	...	4·8	2·9	6·8

(2) *May*, 1884, *to June*, 1889.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	44·8	38·7	36·8	53·1	51·9	59·4	57·3	60·4	51·9	52·6	45·6	42·1
Above the mean . .	...	...	...	3·1	1·9	9·4	7·3	10·4	1·9	2·6	...	...
Below the mean . .	5·2	11·3	13·2	...	...	...	...	...	...	...	4·4	7·9

CHART IX.—SEASON CURVE OF FEBRILE ILLNESS OTHER THAN SEPTICÆMIA AND PELVIC INFLAMMATION IN CHILDBED.
General Lying-in Hospital—Morbidity. (See Table XXI.)
(1) *July*, 1882, *to April*, 1884; (2) *May*, 1884, *to June*, 1889.



The curve in each division of this chart is the very reverse of that given by the corresponding division Chart VI.

Though, as in duty bound, I have made this criticism on the value of the evidence derived from this source, I shall now show that this stricture does not hold good to such an extent as to affect appreciably the conclusion which has been reached as to the excessive prevalence during the summer of febrile illness dependent on causes other than septicæmia and pelvic inflammation.

In the first place, the cases of septic illness which took place after May, 1884, are so infrequent by comparison with cases of febrile illness due to other causes, that even

if in each case some such additional cause of fever were added, it would not appreciably affect this curve, and yet the curve-record of this period is quite distinctive. From this alone, the conclusion may be arrived at that febrile illness due to some other cause than septicæmia or pelvic inflammation is of more frequent occurrence during the summer than during the winter months.

Note.—I leave out of consideration the upper division of this chart, and for the following reason. The cases of febrile illness during this period were more frequently septic in character, and of great severity, and, therefore, their masking influence was often great. For instance, during the month of May, 1883, 95 per cent. of the patients admitted suffered from fever; in 60 per cent. the illness was of a septic nature, leaving little more than one third to be accounted for by other conditions. It is obviously unfair to compare the proportion of cases of fever, which in that one third could be distinguished as dependent on such and such conditions, to the total number of patients, when in more than half the remainder fever due to similar conditions might exist, but, owing to the septic illness, would pass unrecognised. In any event the cases would be included in the septic category, and not in the other. Febrile illness due to septicæmia or pelvic inflammation is fully represented, but that dependent on other causes is not.

In the second place, unimpeachable evidence can be given as to the excessive prevalence of febrile illness due to other causes than septicæmia or pelvic inflammation during the summer as compared with the winter.

I have already proved by means of the morbidity record of the General Lying-in Hospital that cases of septicæmia and pelvic inflammation are of more frequent occurrence during the winter than summer (Charts V and VI). I would now direct attention to the following tables and charts, which, in a similar manner, deal with febrile illness from all causes combined, and in which that due solely to septicæmia and pelvic inflammation is conse-

quently included. This inclusion might be expected so to influence the record as to raise the curve above the mean during the winter and to depress it during the summer. But the very reverse of this is the case.

The following table (Table XXII) gives for each month of the year the mean percentage of patients for the whole seven years who suffered from febrile illness during the lying-in period.

TABLE XXII.—*Mean Monthly Percentage of Puerperæ, in the General Lying-in Hospital, from July,* 1882, *to June,* 1889, *inclusive, who had fever from* All Causes combined.

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
47·0	46·9	42·0	**53·2**	48·0	**50·8**	**50·8**	**57·6**	**54·8**	**51·0**	50·0	45·8

Note.—The figures in dark type are above, those in ordinary type below the mean—50·0.

This table shows that the proportion is more frequently above the mean during the summer than during the winter months.

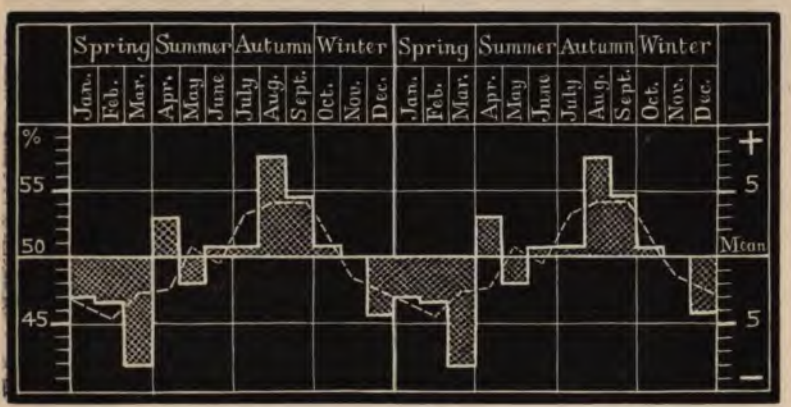
The following table (Table XXIII) represents the same result in percentages above and below the mean. In the accompanying chart (Chart X) it is shown diagrammatically.

TABLE XXIII.—*Fever Rate from* All Causes combined, *in the General Lying-in Hospital, for seven years, July,* 1882, *to June,* 1889, *inclusive, in percentages above and below the mean.*

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	47·0	46·9	42·0	53·2	48·0	50·8	50·8	57·6	54·8	51·0	50·0	45·8
Above the mean . .	...	...	...	3·2	...	·8	·8	7·6	4·8	1·0	...	...
Below the mean . .	3·0	3·1	8·0	...	2·0	...	...	...	...	...	...	4·2

CHART X.—SEASON CURVE OF FEBRILE ILLNESS, FROM ALL CAUSES COMBINED, IN CHILDBED.

General Lying-in Hospital—Morbidity (*See Table* XXIII). *July*, 1882, *to June*, 1889.



The curve is generally above the mean during the summer, and below during the winter months.

On comparing this with the curve of Chart V, which represents the prevalence of septic illness by itself, it will be found not only that they fail to correspond, but that the rise and fall are in direct opposition. The rise and fall in Chart X, though naturally not so marked, is quite distinct. From this, it is apparent that the prevalence of septic illness has not been sufficient to neutralise the summer rise and winter fall in the prevalence of illness due to other causes. It is scarcely necessary to add, that had septic illnesses been eliminated from the record from which this curve is constructed, the summer rise and winter fall would be more pronounced, and would more nearly, though (for the reason above explained) not quite, correspond to that of Chart VIII, which deals with febrile illness due to causes other than septicæmia and pelvic inflammation. In essential features they are the same, and, therefore, substantiate the conclusion which has

been drawn as to the excessive prevalence of cases of non-septic illness during the summer as compared with the winter.

It may be demonstrated that the same conclusion may be reached from the evidence afforded by the morbidity records both before and after May, 1884. Before that date, the cases of septic illness were so frequent as to neutralise, or more than neutralise any summer rise in febrile illness attributable to other causes which may have existed; but, after that date, when such cases were few and far between, the summer rise and winter fall is distinctly portrayed.

The following tables (Tables XXIV and XXV) and chart (Chart XI) express the monthly proportion of labours followed by fever for each of the two periods in the same way as before.

TABLE XXIV.—*Mean Monthly Percentage of Puerperæ, who had Fever from* All Causes combined, *in the General Lying-in Hospital, for each of the two periods,*—(1) *From July,* 1882, *to April,* 1884, *inclusive, and* (2) *from May,* 1884, *to June,* 1889, *inclusive.*

(1) *July,* 1882, *to April,* 1884.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
78·6	82·9	**84·9**	78·3	**95·6**	74·1	70·4	**88·7**	**93·4**	82·6	81·5	**90·4**

Note.—The figures in dark type are above, those in ordinary type below the mean—83·0.

(2) *May,* 1884, *to June,* 1889.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
36·0	36·6	30·6	**43·6**	**48·1**	**47·2**	**44·2**	**47·6**	**42·3**	**42·3**	37·5	35·8

Note.—The figures in dark type are above, those in ordinary type below the mean—40·6.

CHART XI.—SEASON CURVE OF FEBRILE ILLNESS, FROM ALL CAUSES COMBINED, IN CHILDBED.

General Lying-in Hospital—Morbidity. (*See Table* XXV.)
(1) *July*, 1882, *to April*, 1884, (2) *May*, 1884, *to June*, 1889.

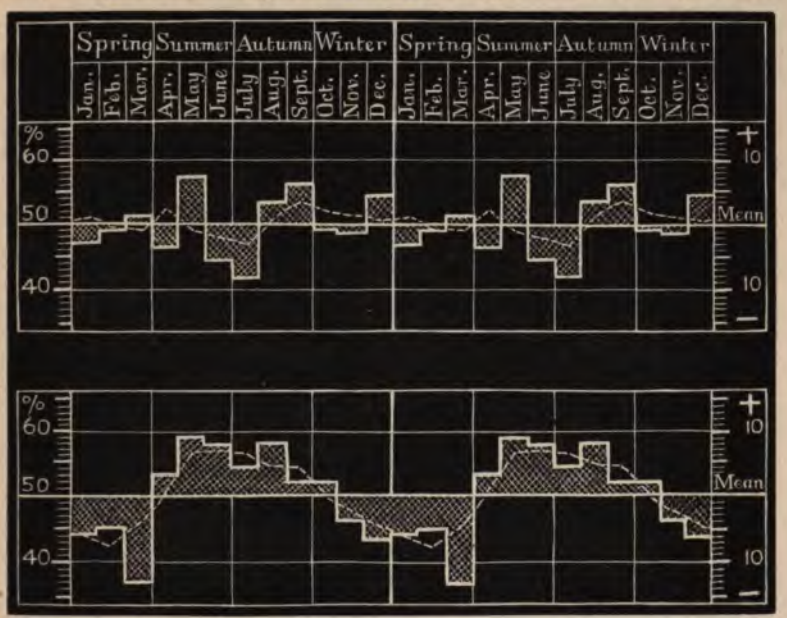


TABLE XXV.—*Mean Monthly Proportion of Puerperæ, who had fever from* All Causes combined, *in the General Lying-in Hospital, for each of the two periods,*—(1) *From July,* 1882, *to April,* 1884, *inclusive, and* (2) *from May,* 1884, *to June,* 1889, *inclusive, in percentages above and below the mean.*

(1) *July,* 1882, *to April,* 1884.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	47·3	49·9	51·1	47·1	57·5	44·6	42·4	53·4	56·2	49·7	49·0	54·4
Above the mean . .	2·7	...	1·1	...	7·5	...	...	3·4	6·2	...	...	4·4
Below the mean . .	...	·1	...	2·9	...	5·4	7·6	...	...	·3	1·0	...

(2) *May*, 1884, *to June*, 1889.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	44·3	45·0	37·6	53·6	59·2	58·1	54·4	58·6	52·0	52·0	46·1	44·0
Above the mean . .	...	...	...	3·6	9·2	8·1	4·4	8·6	2·0	2·0	...	...
Below the mean . .	5·7	7 0	13·4	...	...	...	...	...	...	...	3·9	6·0

The curve in the upper division of this chart scarcely varies from the mean and shows no distinct correspondence either with that which represents the prevalence of septicæmia and pelvic inflammation (compare Chart VI (1)) or with that of febrile illness due to other causes (compare Chart IX (1)).

The curve in the lower division of the chart is distinctive, and presents a well-marked seasonal variation corresponding to that given by the record of illness due to causes other than septicæmia and pelvic inflammation for the like period (compare Chart IX (2)), but, in so far as it shows a winter fall and summer rise, is the very reverse of that given by the record of the prevalence of septicæmia and pelvic inflammation for the same period (compare Chart VI (2)).

In the above records the severity of the illness has not been taken into account. In the following tables and chart the amount of illness (as gauged by the fever) is included.

The following tables give, the one (Table XXVI) under the head of "Approximate Fever Rate" and the other (Table XXVII) under the head of "True Fever Rate" (the distinction between which has been already defined), the average amount of fever (in days × degrees above 100° F.), from all causes combined, in the one case per patient *lying-in* during each month, and in the other per patient *delivered* during each month, in the General Lying-in Hospital for the whole seven years.

TABLE XXVI.—*Approximate Fever Rate,* i. e. *the average amount of fever (in days × degrees above* 100° *F.), from* All Causes combined, *per patient lying-in during each month, in the General Lying-in Hospital, for seven years, July,* 1882, *to June,* 1889, *inclusive.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average for year.
1882	...	...	...	...	...	...	13·8	16·0	**23·2**	**19·7**	18·8	**22·6**	19·0
1883	12·6	**21·7**	**20·0**	**19·2**	**31·1**	7·8	16·0	**17·2**	14·0	15·8	11·2	11·0	16·4
1884	**11·5**	**13·4**	**11·5**	7·7	...	...	...	...	...	...	...	...	11·0
,,	...	...	...	...	**4·7**	**3·0**	1·1	1·5	**2·2**	1·5	1·3	0·5	1·9
1885	1·1	1·7	**3·9**	**5·1**	**4·8**	**2·5**	**5·2**	**2·7**	1·6	**2·6**	**3·5**	**4·9**	3·3
1886	1·2	**2·0**	**1·8**	**2·1**	**2·0**	**1·9**	1·1	**1·8**	0·9	1·5	**2·0**	1·6	1·6
1887	**2·3**	**2·0**	**2·3**	1·4	0·7	**3·3**	1·2	**2·4**	0·7	1·4	**1·7**	0·5	1·6
1888	**2·1**	**1·8**	**2·0**	**2·3**	**1·8**	1·3	**1·8**	1·4	**3·4**	**2·1**	0·5	0·8	1·7
1889	0·6	0·6	0·4	**2·2**	**1·7**	1·0	...	...	...	...	...	...	1·0

Note.—The figures in dark type are above, those in ordinary type below the average for each year.

TABLE XXVII.—*True Fever Rate*, i. e. *the average amount of fever* (*in days* × *degrees above* 100° *F.*), *from* All Causes combined, *per patient delivered during each month, in the General Lying-in Hospital, for seven years, July*, 1882, *to June*, 1889, *inclusive.*

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average for year.
1882	...	...	...	...	...	...	**12·3**	**24·8**	**24·2**	**24·1**	19·7	**22·5**	21·2
1883	**17·3**	**19·7**	**22·5**	16·2	**24·8**	13·0	**16·7**	15·0	14·6	**19·3**	6·3	14·3	16·6
1884	**13·3**	**14·8**	6·6	**14·5**	...	...	...	...	...	...	...	...	12·3
„	...	...	...	...	2·1	2·6	1·2	1·8	2·0	2·1	1·4	0·8	1·7
1885	1·2	2·8	**4·5**	**3·5**	**5·7**	2·0	**5·8**	2·0	2·4	1·7	**6·8**	2·9	3·4
1886	1·4	**1·9**	**2·2**	**1·7**	**2·2**	**1·8**	1·5	1·5	0·8	1·6	**2·8**	**1·9**	1·7
1887	1·3	**3·5**	0·8	1·6	1·7	**2·0**	**2·1**	**2·1**	0·7	**2·4**	**1·7**	1·0	1·7
1888	**2·0**	1·5	**2·1**	**2·3**	1 6	**1·8**	1·6	1·6	**3·5**	**1·9**	0 5	0·7	1·7
1889	0·5	0 6	0·6	**1·9**	**1·8**	0·8	...	...	...	...	...	...	1·0

Note.—The figures in dark type are above, those in ordinary type below the average for each year.

In the tables which follow (Table XXVIII) the average amount of fever from all causes combined is similarly given for each patient delivered in either period, and for purposes of comparison the result has been reduced to percentages above and below the mean (Table XXIX), and is represented in the form of a diagram (Chart XII).

TABLE XXVIII.—*Mean Fever Rate*, i.e. *the average amount of fever* (*in days* × *degrees above* 100° *F.*), *from* All Causes combined, *per patient delivered during each month, in the General Lying-in Hospital, for each of the two periods*—(1) *From July*, 1882, *to April*, 1884, *inclusive, and* (2), *from May*, 1884, *to June*, 1889, *inclusive.*

(1) *July*, 1882, *to April*, 1884.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
15·3	**17·2**	14·5	15·3	**24·8**	13·0	14·5	**19·9**	**19·4**	**21·7**	13·0	**18·4**

Whole period.
17·0

(2) *May*, 1884, *to June*, 1889.

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1·2	**2·0**	**2·0**	**2·2**	**2·5**	1·8	**2·4**	1·8	1·8	1·9	**2·6**	1·4

Whole period.
2·0

Note.—The figures in dark type are above, those in ordinary type below the mean for each period.

TABLE XXIX.—*Mean Fever Rate*, i. e. *the average amount of fever* (*in days* × *degrees above* 100° *F.*), from All Causes combined, *per patient delivered during each month, in the General Lying-in Hospital, for each of the two periods*—(1) *From July*, 1882, *to April*, 1884, *inclusive, and* (2), *from May*, 1884, *to June*, 1889, *inclusive, in percentages above and below the mean.*

(1) *July*, 1882, *to April*, 1884.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	44·8	50·3	42·5	44·8	72·4	37·9	42·3	58·1	56·6	63·3	37·9	53·7
Above the mean , .	...	·3	...	...	22·4	...	...	8·1	6·6	13·3	...	3·7
Below the mean , .	5·2	...	7·5	5·2	...	12·1	7·7	...	...	...	12·1	...

(2) *May*, 1884, *to June*, 1889.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Percentage .	31·7	51·1	50·6	54·6	62·5	45·5	60·6	44·7	46·5	48·1	65·5	36·2
Above the mean . .	...	1·1	·6	4·6	12·5	...	10·6	...	...	...	15·5	...
Below the mean . .	18·3	...	...	...	...	4·5	...	5·3	3·5	1·9	...	13·8

CHART XII.—SEASON CURVE OF FEBRILE ILLNESS, FROM ALL CAUSES COMBINED (INCLUDING SEVERITY OF ILLNESS), IN CHILDBED.
General Lying-in Hospital—Morbidity (*See Table* XXIX).
(1) *July*, 1882, *to April*, 1884, (2) *May*, 1884, *to June*, 1889.

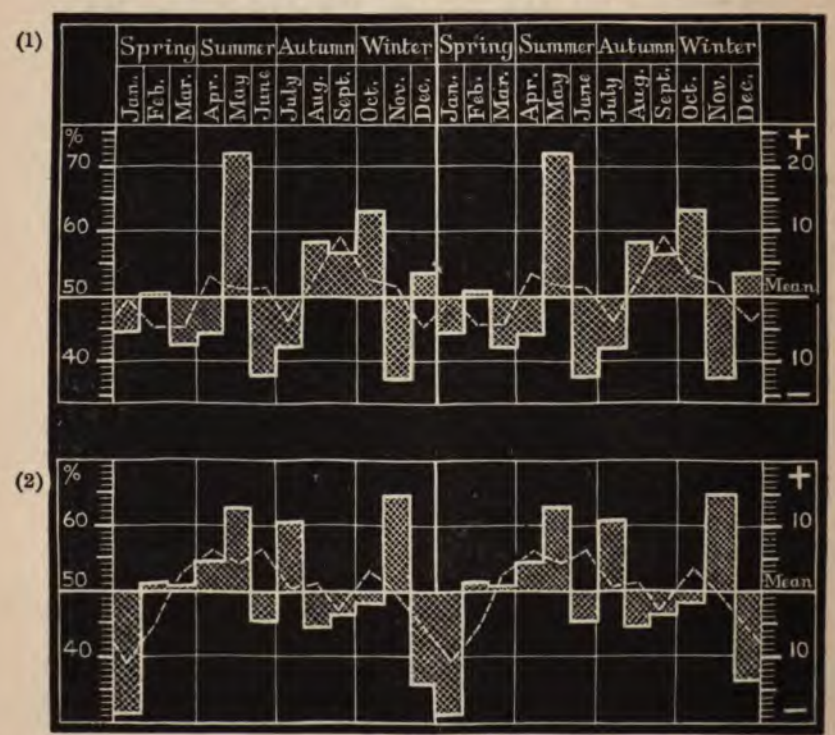


TABLE XXX.—*Expressing in Figures, calculated according to Bloxam's Method, the Percentages above and below the Mean in Charts* I—XII.

Note.—According to Bloxam's method, the central term of any three consecutive terms represents their average; consequently, the figures standing in the table against the months of February, May, August, and November may be taken to represent the percentage above and below the mean of the spring, summer, autumn, and winter months respectively. They are, therefore, displayed in bolder type.

CHART.		I.	II.	III.	IV.	V.	VI (1).	VI (2).	VII (1).	VII (2).	VIII.	IX (1).	IX (2).	X.	XI (1).	XI (2).	XII (1).	XII (2).
Spring	Jan.	+ 24·8	+ 13·2	...	+ 9·0	+ 10·5	+ 6·0	+ 36·0	− 1·3	− 13·9	− 7·3	− 4·3	− 8·2	− 3·5	+ 0·5	− 5·6	− 0·4	− 10·4
	Feb.	**+ 18·2**	**+ 21·7**	**+ 6·9**	**+ 5·7**	**+ 5·6**	**− 1·0**	**+ 27·7**	**− 4·1**	**− 5·3**	**− 7·6**	**− 0·2**	**− 9·9**	**− 3·7**	**− 0·6**	**− 7·7**	**− 4·2**	**− 5·6**
	Mar.	+ 3·0	+ 25·7	...	+ 0·8	+ 1·5	− 7·6	+ 37·4	− 2·9	+ 4·6	− 3·8	+ 6·0	− 7·2	− 2·7	− 0·7	− 4·6	− 4·2	+ 2·1
Summer	April	− 3·9	+ 21·4	...	− 2·3	− 6·6	+ 1·4	+ 4·1	+ 10·2	+ 23·4	− 1·1	+ 2·4	− 2·8	− 2·3	+ 1·9	+ 0·1	+ 3·2	+ 5·9
	May	**− 13·8**	**+ 9·1**	**− 3·6**	**− 6·9**	**− 14·6**	**− 4·9**	**− 0·1**	**+ 10·8**	**+ 6·3**	**+ 4·9**	**+ 4·1**	**+ 4·8**	**+ 0·6**	**− 0·3**	**+ 6·9**	**+ 1·7**	**+ 4·2**
	June	− 16·4	− 3·8	...	− 8·9	− 15·5	− 1·7	− 18·1	+ 10·6	+ 23·2	+ 4·1	− 2·0	+ 6·2	− 0·2	− 1·9	+ 7·2	+ 0·8	+ 6·2
Autumn	July	− 24·5	− 11·9	...	− 9·4	− 9·9	− 7·5	− 23·0	+ 1·4	− 1·2	+ 6·6	+ 0·8	+ 9·0	+ 3·0	− 3·2	+ 7·0	− 3·9	+ 0·2
	Aug.	**− 26·4**	**− 17·9**	**− 10·6**	**− 7·0**	**+ 1·8**	**+ 0·8**	**− 18·1**	**+ 3·0**	**+ 12·6**	**+ 5·0**	**+ 0·5**	**+ 6·5**	**+ 4·4**	**+ 0·6**	**+ 5·0**	**+ 2·3**	**+ 0·6**
	Sept.	− 15·9	− 21·9	...	− 2·5	+ 6·1	+ 4·8	− 6·3	+ 3·7	− 5·8	+ 4·2	+ 1·5	+ 4·9	+ 4·4	+ 3·1	+ 4·2	+ 9·3	− 3·6
Winter	Oct.	+ 3·5	− 22·5	...	+ 1·4	+ 6·2	+ 2·7	+ 1·3	− 4·7	− 9·8	+ 0·9	+ 0·7	± 0·0	+ 1·9	+ 1·6	± 0·0	+ 2·6	+ 3·3
	Nov.	**+ 21·8**	**− 12·6**	**+ 7·1**	**+ 7·0**	**+ 7·3**	**+ 7·7**	**+ 8·9**	**− 4·1**	**− 15·1**	**− 3·3**	**− 4·9**	**− 3·3**	**− 1·1**	**+ 1·0**	**− 2·7**	**+ 1·6**	**− 0·1**
	Dec.	+ 29·0	+ 0·3	...	+ 9·4	+ 8·0	+ 7·0	+ 5·5	− 5·8	− 23·4	− 5·4	− 5·8	− 5·9	− 2·4	+ 0·2	− 5·2	− 4·6	− 5·6

The curve given by either division of this chart corresponds in the main with that given by Chart XI, which represents the prevalence (excluding severity) of febrile illness. The effect of including the severity of the illness has been to render the curve less steady, but otherwise they closely correspond. Inasmuch as, after May, 1884, the cases of septicæmia and pelvic inflammation were as a rule not only few and far between, but were of slight intensity also, and attended, generally speaking, with but little fever, the curve given in the lower division of Chart XII may to all intents and purposes be taken to represent that afforded by non-septic illness both as regards prevalence and severity.

In like manner, the curve given in the lower division of Chart XI may be taken to represent that afforded by non-septic illness as regards prevalence only. On comparing the two curves, when due allowance is made for the irregularity of the former, they are found to correspond in every respect. From this it may be inferred that as regards severity, such accidental causes of febrile illness in childbirth evince no difference according to the season of the year.

It would be a point of considerable interest to determine upon what particular cause the summer prevalence of non-septic illness is dependent. I trust that I may have at my disposal sufficient data for determining this question. I prefer to wait until these are elaborated before expressing an opinion. In the meantime, I forbear to enter the realms of speculation, and will rest content with the simple exposition of the seasonal variation.

Further, with regard to the cases of septic illness, much still remains to be done in order to ascertain what precise factor or combination of factors, if any, in the whole range of meteorological observation is directly responsible for the seasonal variation in the prevalence and severity of such cases. This, also, for the present I am constrained to pass over.

I should, however, mention that the patients in hospital

are, irrespective of season, placed more or less completely in direct communication with the outside by means of open windows and ventilators, and therefore might be expected to show to a corresponding degree by changes in the fever-rate any seasonal variation, just as a barometer similarly placed in a favourable position. On the other hand, in the general run of practice, communications with the outside—windows, doors, and ventilators—are more frequently closed, especially during the winter, and in consequence an artificial atmosphere is produced, in which the patient, being cut off from external meteorological influences, could not be expected to show such changes, at any rate as a direct effect.

In conclusion, I would draw attention to the following table (Table XXXI) and chart (Chart XII), which give for each quarter of the year throughout the whole period of seven years—(1) The registered childbed death-rate of London; (2) the registered death-rate of London from puerperal fever; (3) the average amount of fever from all causes (True Fever Rate) for each patient delivered in the General Lying-in Hospital; and (4) the average amount of fever attributable solely to septicæmia and pelvic inflammation (Septic Rate) for each patient delivered in the hospital.

By way of explanation, I would point out that these curves all read from the base line on the scale to the left of the chart—the death-rate being presented with reference to each 10,000 children born alive, and the fever rate and septic rate are given in days × degrees above 100° F. with reference to each patient delivered in the hospital.

The septic rate bears to the general fever rate of the hospital a relation corresponding to that which the registered death-rate from puerperal fever bears to the registered childbed death-rate of London; and (except in so far as it is amenable to the strictures which have been passed upon the registration record, in commenting on the subject of "accidents of childbirth"), the difference between the death-rate from puerperal fever and the full childbirth death-rate, which difference represents the death-

rate due to accidents of childbirth alone in London, is comparable to the difference between the septic rate and the general fever rate, which difference represents the amount of fever due to accidental causes alone in the hospital (again with the reservation which has been made in respect of it). In the one case the death-rate due purely to accidents of childbirth is over-estimated ; in the other, the fever rate due to causes other than septicæmia and pelvic inflammation is inadequately represented. But these imperfections by no means invalidate the evidence afforded by the chart.

The approximate fever rate of the hospital is given for each month by means of a thin line. It will be observed that where the cases of severe and prolonged illness are few, the approximate and true fever rates very nearly coincide.

Upon separate scales to the right of the chart are indicated the readings of the mean barometric pressure, the percentage sunshine, the mean temperature, and the mean rainfall, for each month of the whole seven years according to the reports of the Meteorological Office* as registered at Greenwich.

Though, as I have proved, there is still an increased tendency to the prevalence of septic illness during the winter as compared with the summer months, this chart shows at a glance how slight by comparison has been the amount of illness and particularly of septic illness, since certain changes (on which I have laid special stress in the first part of my paper on "Fever in Childbed") have been effected in the service of the hospital, and how very slight by comparison has been the influence of season since that time on the fever rate and particularly on the septic rate of the hospital. On the other hand, this chart also shows that the winter rise and summer fall still remain prominent features in the death record of puerperal

* The figures also will be found in the Registrar-General's Returns, and are also given in 'Whitaker's Almanack,' under the heading of "The Year's Weather."

fever in London generally, and that during these seven years it has on the whole shown but slight diminution.* During the same period in a lying-in institution, to which the more serious cases naturally gravitate, it has been possible, not only to reduce the death-rate and especially the death-rate from puerperal fever to a point even less than that of outside practice, but also to diminish the amount of illness, and more particularly of septic illness, to such a degree that it has actually disappeared from the records of the hospital for months together; whereas the instances of its reappearance have, as a rule, been dependent on few cases and of slight intensity. This confirms, were further confirmation wanting, the opinion, which I have previously expressed, that this result has been attained by alterations which have been purposely introduced into the service of the hospital. Attention to such points of general hygiene and the due observance of such details as serve to attain and to maintain a condition of asepsis are requisite, and cannot be too strongly insisted upon. To the observance of precautions over which it is possible to exercise full control, rather than to the direct effect of the elements over which no influence can be exercised, must we look for the means of eliminating febrile illness, and particularly septic illness, from the dangers and terrors incidental to childbearing women, the mothers of our race.

* Since the above was written I have dealt more fully with the subject of "The Mortality of Childbirth" in the 'Lancet,' July 1st, 1893. The above conclusion is confirmed and strengthened. It appears that, though the death-rate from childbirth has not been appreciably diminished so far as England and Wales are concerned, considerable improvement has taken place in London, especially as regards "Accidents of Childbirth;" and that as regards "Puerperal Fever," though an actual increase has taken place in the provinces, in London slight improvement has been effected,

TABLE XXXI.—*The relation of the Registered Childbed Death-rate of London to the Fever-rate of the General Lying-in Hospital for seven years, July, 1882, to June, 1889, for each quarter of the year.*

	LONDON.							GENERAL LYING-IN HOSPITAL.		
	Registered births of children born alive.	Number of deaths referred to—			Death-rate of mothers* from—			Fever-rate per admission† from—		
		Accidents of childbirth.	Puerperal fever.	Puerperal fever and childbirth.	Accidents of childbirth.	Puerperal fever.	Puerperal fever and childbirth.	Accidental causes.	Septicæmia and pelvic inflammation.	All causes combined.
1882. III	32,604	61	61	122	18·7	18·7	37·4	6·6	13·6	20·2
IV	33,172	56	100	156	16·9	30·1	47·0	4·1	17·8	21·9
1883. I	35,655	56	91	147	15·7	25·5	41·2	3·1	16·7	19·8
II	33,737	47	88	135	14·0	26·0	40·0	2·8	14·6	17·4
III	32,309	37	59	96	11·5	18·2	29·7	2·6	12·8	15·4
IV	31,955	40	69	109	12·6	21·5	34·1	4·2	8·6	12·8
1884. I	34,894	48	98	146	13·2	28·0	41·2	5·5	6·0	11·5
II	33,814	40	59	99	11·8	17·4	29·2	2·5	4·6	7·1
III	32,833	50	50	100	15·2	15·2	30·4	1·5	0·1	1·6
IV	35,944	55	120	175	15·3	33·3	48·6	1·4	0·0	1·4
1885. I	35,162	57	117	174	16·2	33·2	49·4	2·1	0·7	2·8
II	31,913	53	72	125	7·6	22·5	30·1	1·9	1·6	3·5
III	32,074	38	55	93	11·8	17·1	28·9	1·7	1·4	3·1
IV	33,351	34	79	113	10·2	23·6	33·8	3·0	0·5	3·5
1886. I	35,477	60	66	126	16·9	18·6	35·5	1·3	0·6	1·9
II	32,980	49	65	114	14·8	19·7	34·5	1·6	0·2	1·8
III	32,743	43	69	112	12·5	21·7	34·2	1·3	0·0	1·3
IV	32,500	48	79	127	14·7	24·3	39·0	1·6	0·6	2·2
1887. I	34,474	35	76	111	9·7	22·4	32·1	0·7	1·2	1·9
II	33·050	38	75	113	11·5	22·6	34·1	1·1	0·6	1·7
III	32·735	43	67	110	13·2	20·4	33·6	1·5	0·1	1·6
IV	32,816	47	110	157	14·3	33·5	47·8	1·5	0·0	1·5
1888. I	34,368	36	133	169	10·5	38·6	49·1	1·5	0·4	1·9
II	32,584	43	63	106	13·2	19·3	32·5	1·8	0·1	1·9
III	31,698	47	38	85	14·9	11·9	26·8	1·6	0·5	2·1
IV	32,430	43	41	84	13·3	12·6	25·9	0·7	0·3	1·0
1889. I	35,083	50	41	91	14·2	11·6	25·8	0·6	0·0	0·6
II	32,949	38	58	96	11·5	17·6	29·1	1·5	0·0	1·5

* Per 10,000 children born alive. † In degrees above 100° F. × days.

EXPLANATION OF CHART XIII.

The *Childbed Death-rate of London* is represented by the dotted line.

The *Death-rate of London from Puerperal Fever* is represented by the broken line.

The *Fever-rate of the Hospital from all causes* is represented by the line at the top of the blank space.

The *Fever-rate of the Hospital from Septicæmia and Pelvic Inflammation* is represented by the line at the top of the vertically shaded portion.

All these are estimated for each quarter of the year.

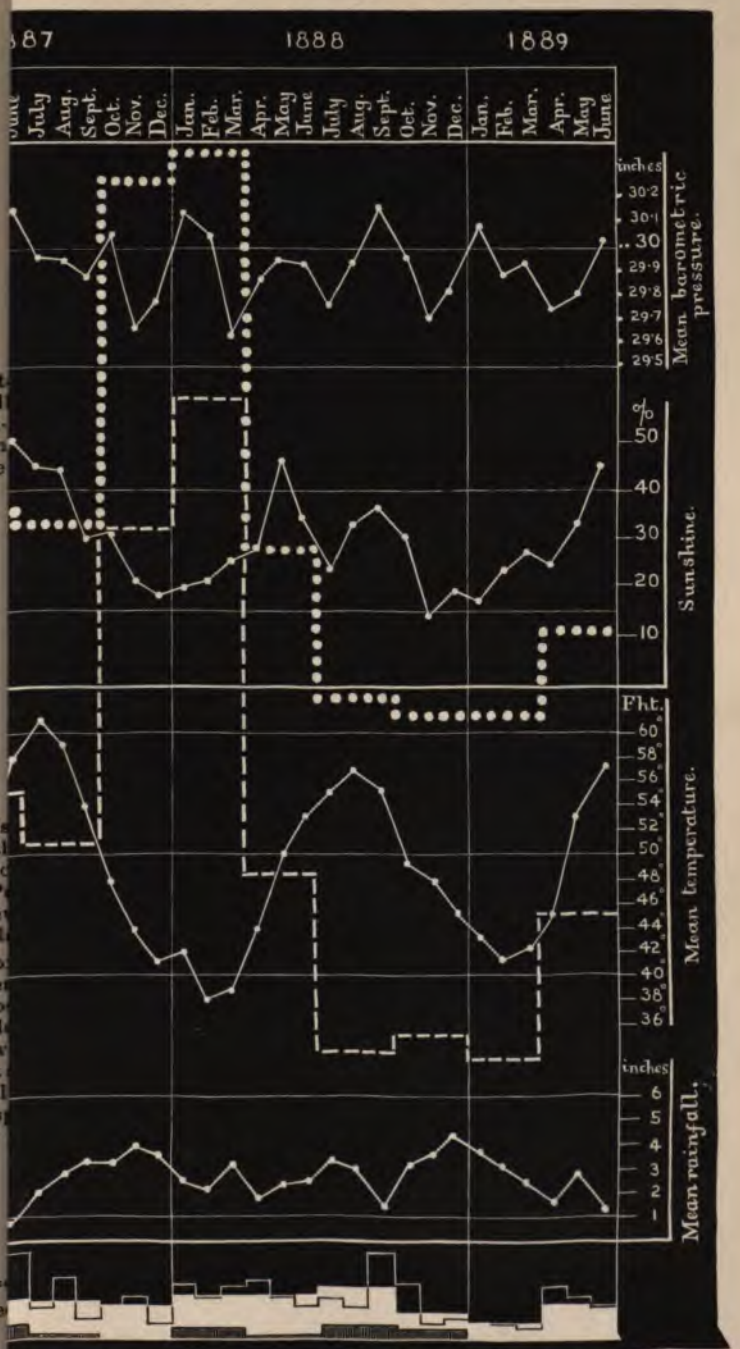
The Childbed Death-rate of London and the Death-rate of London from Puerperal Fever both read from the base line on the scale to the left of the Chart in relation to 10,000 confinements. The space between these two curves denotes the Death-rate of London from Accidents of Childbirth. Similarly with regard to the General Lying-in Hospital, the Fever-rate from all causes and the Fever-rate from Septicæmia and Pelvic Inflammation both read from the base line on the same scale, and indicate the amount of fever (in degrees above 100° F. × days) for each patient admitted. The space between these two curves indicates the Fever-rate from other (accidental) causes.

The approximate Fever-rate of the Hospital and the *External Meteorological Conditions* are represented by continuous lines.

These are estimated for each month of the year.

The approximate Fever-rate of the Hospital reads from the base line on the scale to the left of the Chart, and indicates the approximate amount of fever (in degrees above 100° F. × days) for each patient lying-in during each month. The External Meteorological Conditions for each month, from observations made at Greenwich, are recorded upon separate scales to the right of the Chart.

ETEOROLOGICAL CONDITIONS. (*See Table* XXXI.)



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Summary.

A. *Mortality.*—(1) *The death-rate from puerperal fever is greater during the winter than during the summer months* (Charts I, II, III).

The same holds good for different places (compare Charts I and II) and for different periods (compare Charts I and III).

The death return under the head of puerperal fever is incomplete (compare Charts I and IV). This only strengthens the above conclusion.

B. *Morbidity.*—(2) *Septic illness in childbed is more prevalent in winter than in summer* (Chart V).

In this respect it agrees with mortality (compare with Charts I and II).

The same holds good both before and after May, 1884 (Charts VI, 1, 2).

(3) *Septic illness, though more prevalent, is attended with less fever and, therefore, is of less severity in winter than in summer.*

This holds good for both periods (Chart VII, 1, 2; compare also with Chart VI, 1, 2).

The question is raised as to whether death or transfer of patients would so cut short the fever record as to account for this difference; also, would association with other (accidental) cases of fever suffice to subvert the curve. Both questions are answered in the negative.

(4) *Other (accidental) cases of febrile illness are more prevalent during the summer than winter* (Chart VIII).

The same holds good for either period, and is especially marked after May, 1884 (Chart IX, 1, 2).

The question is considered as to whether this difference is merely apparent (through masking by septic illness) or real. It is proved to be real (Chart IX, 2; compare also with Charts X and XI, 2).

(5) *In severity these other (accidental) cases evince no difference according to season* (compare Chart XI, 2, with XII, 2).

(6) *The septic cases during the later period have been so few and, generally speaking, of such slight intensity that they have proved insufficient to neutralise the summer prevalence of non-septic cases* (compare Charts X and XI, 2) *even when the severity of the illness is taken into account* (compare also with Chart XII, 2).

This does not hold equally good of the early period (Charts XI, 1, and XII, 1).

(7) *Though, in the hospital, where the patients are more certainly exposed to external meteorological influences, it is still possible to discover an increased tendency to the prevalence of septic illness during the winter, since May, 1884, the amount of illness of this description has been so slight, that no such variation in accordance with the season of the year can be traced as will in any degree correspond with that observed in practice outside the hospital* (Chart XIII).

Dr. CHAMPNEYS expressed his high admiration of Dr. Boxall's latest contribution to the study of puerperal fever. It was well known that in the progress of any research the final problems were usually of increasing difficulty. Dr. Boxall had collected facts with great labour and also with great intelligence, and had analysed them, with the result that some conclusions came out which were not easy of immediate explanation. Among these was the greater prevalence of puerperal fever during the winter months, of which deficient ventilation and general hygiene might or might not be a full explanation. This method of collecting and analysing facts, and of presenting their results, was more scientific than to start with theories and to dissent from facts which did not agree with them. He had no doubt that in the future, when the problems became, perhaps, better understood, Dr. Boxall's papers would be quoted as one of the most valuable contributions to this great subject, and that the credit of such work would form a very valuable part of the reputation of the Obstetrical Society.

Dr. HERBERT SPENCER wished to express his appreciation of the great value of Dr. Boxall's paper; it dealt almost entirely with facts which were beyond criticism. He would like to point out (what, no doubt, had occurred to the author of the paper) that while he had respectable authority for naming the four quarters of the calendar year spring, summer, autumn, and winter, yet it was not in January, February, and March

that we, in this country, had spring weather; this was the coldest and wintriest quarter of the year, as was well known and could be seen in Chart XIII. He (Dr. Spencer) thought that a closer approximation to the seasonal variations would be obtained by beginning to count the seasons at April or, still more accurately, at March.

The PRESIDENT expressed the thanks of the Society to Dr. Boxall for his laborious paper, and for the beautiful charts by which it was illustrated. He did not agree with those who preferred individual experiences to statistical investigations such as those of Dr. Boxall. The inductions which Dr. Boxall had drawn from facts he (the President) thought were indisputable. He regarded Dr. Boxall's paper as one of the most valuable contributions to our knowledge of the subject that had ever appeared, and the Society was additionally to be congratulated that this paper did not stand by itself, but was one of a series, so that we might hope for further papers from the author, throwing yet more light on this difficult subject. To his (the President's) mind, the probable explanation of the greater frequency of puerperal fever in the cold months was the dislike of open doors and windows, and of washing and being washed, natural in cold weather; while the greater frequency of illness of other kinds in the warm months might be due to the pleasant weather inducing lying-in women to leave their beds and do things that they would not have done unless tempted by what appeared unusually favourable conditions.

Dr. AMAND ROUTH thought the conclusions of Dr. Boxall's paper most valuable, and the fact that the effect of season on both mortality and morbidity was very much more obvious in ordinary midwifery than in lying-in hospitals, would encourage accoucheurs to adopt the same precautionary measures as were in force at those institutions. This fact also showed that season was only indirectly responsible for variations in puerperal mortality. Septicæmia was more frequent in winter for two main reasons—inefficient ventilation, and dislike to wash the examining hand so frequently, especially in poor-class practice, where hot water was not forthcoming. Possibly in the model city of Hygeia, Dr. Boxall would advocate a law that babies should only be produced during the summer months, and after all, this was only what obtained in the life-history of all birds, beasts, and fishes, whilst in a state of nature, at all events in temperate climates, human mammals and domesticated animals were the sole exceptions.

Dr. CLEVELAND said his remarks referred to cases in private practice. He had sometimes, especially in earlier days, felt the scare of an impending attack of puerperal fever, on being called to patients, shortly after delivery, who had taken a chill and

become feverish. Hence, in his opinion, the necessity for seeing that the lying-in room was kept free from draught, and, in the colder months, of a proper temperature by means of a fire, which, though not unfrequently objected to, materially assisted ventilation. He believed that a chill might predispose the system to imbibe the puerperal poison when it was, so to say, afloat, in the same way that diarrhœa, if neglected, predisposed the system to take the cholera bacillus, when it was lurking in the neighbourhood.

Dr. CHARLES CHEPMELL suggested that most febrile conditions due to local inflammations were more prevalent during the winter months. He considered that the general term puerperal fever included several distinct types of disease, and that these required classification before any conclusions could be drawn from statistics in which this had not been taken into consideration.

Dr. BOXALL, in reply, thanked the Society for the attention bestowed upon his communication. The increase in mortality from puerperal fever during the winter months was not a mere notion, but an old and well-established observation, the force of which was apparent to everyone capable of appreciating statistical evidence. Starting from this observation, he had endeavoured by similar means to elucidate the influence of season on morbidity. That septic illness in childbed should be more prevalent in winter than in summer followed almost as a corollary, and was amply confirmed by the evidence. But, though not so readily inferred, it appeared none the less true that septic illness was attended with less fever, and therefore was of less severity, in winter than in summer. And, although of this a feasible explanation might be wanting, the conclusion was thereby rendered none the less certain. By way of analogy, Dr. Boxall remarked that, while it was on all hands admitted that ordinary colds in the head occur much more frequently during the winter than summer, he found no difficulty in endorsing the opinion from personal experience that the proportion of severe to slight attacks of catarrh was greater in summer than in winter. Here, again, the reason did not seem obvious, yet it was possible to accept such a conclusion in the absence of a valid explanation. To those who were content to abide by mere impressions, statistics, however carefully prepared, would not carry conviction. There were people, doubtless, to whom a well-drawn balance sheet or even their own bank-book conveyed no clear impression of financial stability. The value of statistical evidence depended on the charactor of the original data. In the present instance the statistics upon which the observations had been based were admittedly imperfect in certain respects, but every care had been taken to render them as accurate as possible. In endeavouring to arrive at the actual facts, the possible bearing

of such imperfections had been indicated in the paper wherever conclusions were drawn. It could scarcely be maintained that advantage had been taken of these imperfections to bolster up preconceived ideas. The principal conclusions offered were based not upon one series of observations alone, but upon several as giving an additional guarantee to their accuracy. The evidence brought forward in the paper showed that the weather was capable of exerting little, if any, direct influence on febrile illness in childbed. The seasonal variations which had been observed in septic illness were doubtless in great measure the indirect outcome of meteorological changes. Less efficient ventilation during cold and inclement weather, mentioned in the paper as likely to prevail in winter, was probably an important indirect factor. Less efficient hand-washing on the part of the obstetric attendants, referred to by Dr. A. Routh, was probably another. And the pinch of poverty also, which affected an unusual number during the winter and thereby depressed the general health and rendered the patient less resistant to baneful influences, must probably be included among the more important agents in producing these variations indirectly. That the four quarters of the year, as pointed out by Dr. Spencer, could not be taken as representative of the seasons was fully admitted; and for this reason, in order to compare with the meteorological observations the fever-rate had also been given for each month as well as for each quarter of the year in Chart XIII. Buchan and Mitchell in their invaluable paper went even further than this, and gave observations for each week of the year, on the ground that the main climatic variations in this country fell not into four, but into six separate divisions of unequal duration, which could not possibly be adequately represented by monthly calculations. But to have attempted so minute a division in a chart already complicated would not have been desirable.

NOVEMBER 1st, 1893.

G. Ernest Herman, M.B., President, in the Chair.

Present—49 Fellows and 5 visitors.

Books were presented by Sir H. W. Acland, the Clinical Society of London, the Council of University College, and the Committee of the Intercolonial Medical Congress of Australasia.

William Alfred Berridge, M.R.C.S. (Redhill); John Henry Dauber, M.A.Oxon., L.R.C.P.; Archibald Lamont Macphail, L.F.P.S., and L.M.Glas.; Robert Sanderson, M.B. (Brighton); and John F. Woodroffe, M.D.Dubl., were admitted Fellows of the Society.

Harry Finley, M.B.Lond. (Carlisle), was declared admitted.

The following gentlemen were elected Fellows of the Society:—Richard Alcock, M.B.Vict. (Goole); George Gunnis Ferguson, M.B., C.M.Glas.; Leonard Grant, M.D.Edin. (New Southgate); James Atkinson Hosker, M.R.C.S. (Boscombe); Robert Douglas Muir, L.R.C.P.Lond.; George C. Steele Perkins, M.B., CM.Edin.; Robert James Probyn-Williams, M.D.Durh.; and James Ramsay Webb, M.B., B.S.Melbourne (Melbourne).

The following gentlemen were proposed for election:—Frederick William Gordon, L.R.C.P.Lond. (Norwich); Thomas Herbert Morse, F.R.C.S. (Norwich); William Sutton Pratt, M.D.; and Israel James Edward Renshaw, F.R.C.S.Edin. (Sale).

CASE OF SYMPHYSIOTOMY (Living Specimen).

By A. H. N. Lewers, M.D., M.R.C.P.

Dr. Lewers showed the patient on whom he had performed symphysiotomy in February last. She was able to walk quite well. The small sinus that remained when she left the hospital had for some time past been soundly healed.

(For the full details of the case see 'Lancet,' August 5th, 1893.)

The President said that they could all see that whatever the amount of necrosis, the patient had recovered with good locomotive power. He had been told by a former assistant of an eminent Continental operator, that that operator had come to look with disfavour upon symphysiotomy, because he found that although the patients left the hospital able to walk well, yet they remained unable to do heavy work on account of the backache which it caused. He therefore asked Dr. Lewers whether his patient was able not only to walk, but to do hard work as well as she could before the operation?

In reply to the President, Dr. Lewers said the patient was able to do her ordinary house-work, but she avoided scrubbing, though she could do it, as it caused a sense of weakness at the lower part of the back.

OVARIAN CYST.

By T. W. Eden, M.D.

The specimen shown is an ovarian cyst which was removed by operation in the Hospital for Women, Chelsea, by Dr. Leith Napier on September 4th, 1893. The patient was a married woman, 35 years of age; the tumour was recognised by her medical attendant three and a half years ago, but only became large enough to attract the notice of the patient six weeks before the operation. Her

general health had been very little affected by the growth of the tumour. The operation was rendered difficult by the presence of numerous adhesions. The tumour itself is an ordinary ovarian cyst, and the point of interest about it is the presence of a growth on the inner aspect of the wall of the principal cyst. It is a conical growth about the size of a walnut, and firm in consistence. Microscopic examination shows it to be composed for the most part of tissue which closely imitates the structure of a fibroid tumour. Running through it, however, are bands of tissue which appear sarcomatous, being composed of masses of large round cells with numerous larger multi-nucleated cells. This part of the growth was considered by Dr. Sims Woodhead and Mr. Alban Doran, to whom the sections were submitted, to be distinctly sarcomatous. We have probably here an example of a tumour which only just oversteps the borders of malignancy, and may for purposes of classification be called a fibro-sarcoma. Cancerous degeneration of ovarian cysts is not uncommon, but he had only been able to discover two other instances in which sarcomatous tissue has been detected in an ovarian cyst, and neither of these cases is published in detail. The patient seven weeks after the operation reported herself as in excellent health, and it is probable that the prognosis of the case is not much impaired by the presence of this growth.

FIBROMA SPONTANEOUSLY ENUCLEATED.

By Amand Routh, M.D., M.R.C.P.

A committee, consisting of Drs. Amand Routh and Griffith, and Mr. Targett, was appointed to report on this specimen.

HYDROSALPINX.

By T. C. Hayes, M.D., F.R.C.P.

The specimen was removed by abdominal section from a young married woman aged twenty-three years. She had been married four years; never pregnant. Catamenia appeared at seventeen, always very scanty and irregular. Never had abdominal pain or discomfort, except during menstruation, till six months after marriage. She was seized suddenly one day, when out in the street, with severe pelvic pain, and was taken at once to a hospital, where she remained some six weeks in a gynæcological ward. Ever since, that is for three and a half years, she suffered intermittently from similar attacks of pelvic pain. She had had since marriage a rather copious white vaginal discharge—no suspicion of its being infective in origin. By vagina the chief portion of an elastic swelling was felt in the posterior cul-de-sac. The specimen consisted of the distended right Fallopian tube, with an enlarged cystic ovary in its concavity. Length of tube along its upper curve 5½ inches, maximum breadth 2¼ inches. Contents clear, non-purulent. It was surrounded by adhesions. Left ovary and tube seemed quite healthy.

RAPIDLY GROWING SOFT FIBRO-MYOMA IN LEFT BROAD LIGAMENT.

By Robert Boxall, M.D., M.R.C.P.

Dr. Robert Boxall showed part of a uterus and its appendages with a rapidly growing soft fibro-myoma in the left broad ligament. The specimen was recently removed by abdominal section from a virgin, twenty-three years of

age. The history of the case pointed to hæmatoma which had undergone suppuration. The softness of the mass (easily appreciated in the fresh state), its situation, the displacement of the uterus to the opposite side and shortness of the uterine canal, tended to confirm this impression. The period had ceased on the day before the operation. A very distinct recent corpus luteum, measuring $\frac{11}{16}$ths × $\frac{1}{2}$ inch, is visible in one of the ovaries. It is proposed to give a full account of the case at a subsequent date.

FURTHER CONTRIBUTION TO THE CLINICAL KNOWLEDGE OF PUERPERAL DISEASES.

By J. Braxton Hicks, M.D., F.R.S., F.R.C.P.,
CONSULTING OBSTETRIC PHYSICIAN TO GUY'S HOSPITAL AND ST. MARY'S HOSPITAL, LONDON.

(Received July 25th, 1893.)

The following cases with their associations appear to me worthy of record, and possibly may be helpful towards the discovery of the cause or causes which arouse the serious disturbances in lying-in women; and in putting them on record I purposely abstain from any endeavour to solve the important questions which naturally arise on their perusal, because I consider though we use terms of more or less definiteness, they are only flashes in the dark, as likely to blind us as to illuminate our way. For it appears to me, in view of the rapid additions to our knowledge of infectious diseases, both in the direction of the action of bacteria and also of the ptomaines, it would be wiser, instead of constantly attempting final conclusions, to accumulate the clinical facts and surroundings *pari passu* with the study of bacteria, &c., and the ptomaines in relation to them.

But in the consideration of these cases there are one or two remarks I should like to make. The first is, that in endeavouring to estimate the influence of infectious diseases on lying-in women, we must bear in mind the variations in intensity each kind exhibits, and not necessarily conclude, because a set or group of cases springing from a mild case are likewise mild, that therefore all

other cases will be equally mild whether they spring from a mild case or from one of extreme virulence and malignancy, or what is popularly called a "bad sort."

It has yet to be determined whether the variations in intensity may be owing to a less or greater quantity of he poison taken into the system of the patient; or if the intensity varies according to the greater receptivity of the patient; or if the specific poison be accompanied to a varying extent by other poisons generated from the same source; or how far a modification, or in regard to bacteria a new phase of growth, common to these organisms, may not determine a modification of kind as well as of intensity of the symptoms arising therefrom. But till these matters are cleared up, and they will require earnest and collateral work, it must be evident that we are not yet near to finding the solution to the questions which arise on the occurrence of these terrible cases, some of which recall, though in isolated ways, the histories of the outbreak of past epidemics.

Another remark I would offer is that the rapidity of the action of the poison, whatever it may be, is much greater than that seen in surgical cases generally. And here springs up a question which must be answered by careful inquiries, namely, whether the entrance by way of the genitals, *i. e.* by inoculation, facilitates this rapidity, whether also the cavernous form, the high temperature, the presence of decaying tissue and fluids, and lastly the near propinquity of the peritoneum, are the factors in the difference, supposing the poison to be of the same kind.

And in addition to these points the special influence of the gonorrhœal poison contracted before delivery has yet, so far as I know, to be definitely determined. One of the sets of fatal cases may have been initiated by this disease.

Finally, in estimating the influence of infectious diseases, especially those which confer immunity in a measure, we must inquire how far our patients have been rendered immune by a previous attack, because it must be borne

in mind that the larger proportion of women, by the time they have arrived at child-bearing age, have already been rendered wholly or partially immune, and, therefore, when exposed during the puerperal period to a contagium, they either altogether resist or modify its effects.

I much regret the absence of many details in the reports following. In private practice the difficulties are great in obtaining necropsies. Microscopical examinations of the blood, of the vomit, and of the lochia are also difficult, but there are times when these can be obtained. With regard to the history of the sequels and surroundings there is also some difficulty in obtaining them, but it is generally to be done by tact and patience.

1st. *Group of three cases.*—Shortly after I published my paper on "Eighty-five Cases of Puerperal Diseases" in 1870 ('Obstet. Trans.,' vol. xii), I received a letter from a medical man enclosing an account of a series of cases which he thought might interest me, but which for certain reasons he considered at that time unadvisable to publish.

In his village a young woman died, after a day's illness, with some obscure abdominal trouble; as he refused a death certificate a post-mortem was ordered. It was found that death resulted from purulent peritonitis, the whole surface being affected. Careful search was made for the source, but without success; no sign of abscess, suppurating cyst, &c., could be found in any part of the cavity of the peritoneum. Be the cause what it might, the medical man attended the same evening a case of labour, on the following day a second, and on the fourth day a third case.

Before a week was over all three were dead. The first death was within twenty-four hours of labour, the second woman lived thirty-six hours, and the third died on the fourth day after delivery, all with similar symptoms, the precise character of which I cannot now state, having mislaid the letter, but of peritonitic kind.

2nd. *Group of three cases.*—A well-known physician was asked to see a lady from America, but being from home a friend in general practice went in his stead. Next day the physician saw the case, and finding it a surgical one called in a well-known surgeon, and all three met at the bedside. The surgeon probed the sinus, for it was an old-standing disease of the femur. Next day a most violent attack of phlegmonous erysipelas supervened, which ultimately extended down the leg to the foot, where a large blister appeared with sloughy unhealthy surface. On the first appearance of erysipelas the general practitioner gave up attending midwifery. After three weeks had elapsed, the blister ulcer still requiring to be dressed daily by the general practitioner, it was thought by the physician and surgeon that he might resume attendance on midwifery. The first case died within thirty-six hours, with quick pulse, pyrexia, vomiting, and slight diarrhœa, and just before the last a very large vomit, then syncope and death, other symptoms not being very marked.

A second lady who was attended before the first was very markedly ill; she, too, died within two days of labour, with the same symptoms, ending with a very large vomit, syncope, and death. The third was attended somewhat later, but before the death of the first. She was not attacked so violently, and recovered after a long illness, albuminuria lasting a long time. I cannot state the precise form of it, not having been called in. The medical man gave up attending confinements for three or four weeks. The first case he then attended died with pyrexia, severe hemicrania, and rash something like scarlatina, lasting over a week. He attended an abortion shortly after. The mother died with a rash of a similar nature. Whether these two later cases were dependent on the earlier ones it is very difficult to say. All of them occurred in different houses.

The surgeon above mentioned who was called in, stated he was perfectly sure the probe, which had not been used for six months, was perfectly clean; but it afterwards

transpired that not long before the lady had taken her room, the previous tenant had died in it on the same bed of a very offensive disease, the nature of which could not be ascertained.

Case 7.—A young married lady in her first confinement was delivered at full time. She had a fairly good labour, but pains were rather flagging; the forceps were applied, but no force was required. Within twelve hours she was attacked with severe vomiting and diarrhœa, temp. 105°, and pulse 130. I saw her on the second day, and she was then rather better of all these symptoms. Her manner was somewhat nervous, but the expression of her face was good; there was no abdominal tenderness. However, shortly after my visit the vomiting returned with violence as well as the diarrhœa. Before eighteen hours she became delirious and lost consciousness, the temperature rising again and reaching 105·5°, and she died about three days after the attack began, not four days after delivery. The abdomen became very tympanitic towards the end, a bright scarlet rash came out all over the abdomen, nates, thighs, and genitals, and extended over the upper portion of the body and head, and after death it became dark purple. After her death the house and sanitary arrangements were inspected, but no special defect was discovered, but about ten or twelve days later an outbreak of diphtheria occurred in a house the garden of which abutted on the back of the gardens of the house where the case just narrated died, and the inspector discovered foul emanations from a sewer at the back of this garden, but it was uncertain how far this affected the other house. Eight days after the mother's death the baby was attacked by erysipelas, of which it died after eight days' illness. The medical man to whom I am indebted for this case was laid up with influenza for three weeks, after which he resumed midwifery practice without any illness following.

Case 8.—The husband of a lady eight months advanced in pregnancy was taken with influenza, and she attended to him, getting out of bed at night. On the third day of his illness his wife was also taken with similar symptoms, and felt very chilly. She had had three attacks of influenza previously. Three days after this the waters broke, next day labour was rapidly accomplished before the medical man could arrive. He saw her half an hour after and found her greatly exhausted, vomiting, and complaining of pain in her stomach. The temperature soon rose to 102·5°. Next day the child died, and the mother's temperature rose to 103·6°; pulse 120. The right elbow-joint was in acute pain, with effusion and redness around. This condition continued with fluctuation as regards the severity of the pain for four days, with the addition of diarrhœa but no sign of peritonitis. Then the left elbow became affected like the right one, and there was vulvitis of a diphtheroid appearance. Her throat also was covered nearly entirely with white membrane, much as in diphtheria. She rapidly ran down, had a series of long severe convulsions, and died on the ninth day after delivery.

This lady had previously had eight children. She enjoyed fairly good health, and was very energetic. Shortly after her death her youngest child had an attack of pneumonia, and her husband a large abscess in the buttock where eczema had been but which had dried up. I may add that the sanitary arrangements were fully tested without detecting any fault.

There had been from time to time in the near neighbourhood cases of septicæmia and death after delivery. A case of erysipelas was taken from the next house, and died in hospital, and a good many cases of diphtheria had occurred over three years close around that house. The general insalubrity of the neighbourhood had given it a bad name, and many families had left it in consequence.

Case 9.—I was called in consultation to see a lady, delivered of her first child about four weeks previously. A few days after she was taken with what was thought to be influenza because her husband had had it a week previously; two of the servants also suffered from it, one case was complicated with pneumonia. Both had left the house before the confinement—one for her home, the other for the hospital.

After some few days of feverishness, the perineal rent, which had been stitched up, became inflamed, and shortly after erythematous erysipelas started from this part, extending gradually over the buttock and down the left thigh to the knee and upward, to the trunk; the total surface affected would amount to nearly one third that of the body. This occupied nearly three weeks after confiement; during this time she had a temperature of from 102° to 104°. By the time I saw her, namely at the end of four weeks, the erythema had subsided; but then the temperature began again to rise, and she complained of pain in the left thigh. This was owing to a slight inflammation of the femoral vein, which was tender and hard. This, however, soon subsided, and she continued to improve and recovered within two months of her confinement. I may add that the child was not affected. In this case, although influenza was in the house, it would be difficult to quote this as one of the effects of that complaint, for afterwards it came to our knowledge that the nurse had been nursing her mother with erysipelas just before.

There are two remarks I wish to add, namely, first that in considering the great rapidity of the development of the symptoms in the first two groups, one cannot but be struck at the exceeding virulence of the poison, that is if it acted directly, I mean without amplification, because the amount of poison introduced must have been very minute; and if we look at it as a ferment, a bacterial growth, one is also struck with the excessive rapidity of cell-growth from a so necessarily small inoculation.

The other is, it would appear that the amount of

poison received by the patient diminishes as time lengthens between the first infection of the hand and the reception by the patient, which is probably tantamount to saying that the rapidity and severity of the symptoms depend on the quantity of poison received. Unfortunately, I have no information as to the kind of purification of the hands employed in these two groups.

Dr. ROUTH said that interesting as Dr. Braxton Hicks's cases were, he thought that the whole history of these unfortunate women proved, that proper antiseptic measures had not been adopted by those who had attended them. At least, Dr. Hicks had in no way referred to these measures. There was ample evidence in these cases to show that erysipelas, diphtheria, measles, carried by the attendants, whether by their clothes or dirty nails, as well as bad drainage, had acted infectiously on them. One case, where the death of the child preceded that of the mother, reminded him much of those sad cases he had seen in Vienna—the child killed, and probably from peritonitis due to a poison inbibed when suckling the mother. He should have been glad also to know if there were in these cases any special atmospheric influences observed to account for this high mortality. It was notorious that a low barometer, more even than very warm weather, led to emanation from the earth of gases. This accounted for explosions in mines where the barometer fell very low, and the exudation of inflammable gas which followed. Everybody knew also that before rain, when the barometer was low, common sewers and drains were especially offensive, and penetrating into apartments did intensify infection. Hence his inquiry. He concluded by denying any intention by his remarks to disparage Dr. Braxton Hicks's able paper, which he was thankful to have heard, but rather to explain a high mortality, because it was not then the fashion to use antiseptics as they did now.

Dr. BOXALL said that, in contemplating such a series of cases as those recorded by Dr. Braxton Hicks in Group I, it was scarcely possible to avoid the reflection that time might perchance serve to dilate, but certainly would not destroy septic material. On the other hand, we now knew that antiseptic measures, if properly carried out, would at once annihilate not only septic, but infectious material of all kinds. Such being the case, he considered that it was high time to put forward an authoritative statement that, by the adoption of efficient precautions, in which antiseptics played the chief part, rather than by abstention from practice, must we seek safety after exposure to infection.

For his own part, he would consider a parturient woman more safe in the hands of an attendant doctor, midwife, or nurse, who habitually adopted antiseptic precautions—even when but recently exposed to infection—than in the hands of one who neglected such measures, or at best employed them in a perfunctory manner, and who, by abstaining from practice for a while, trusted to time alone for disinfection.

Dr. HANDFIELD-JONES noticed that the author of the paper had given details of one case in which it was inferred that the puerperal mischief was due to drain poison. He would be interested to know Dr. Braxton Hicks's views on this point, as he had recent notes of three cases in which foul emanations seemed to have played an important part in the production of puerperal poisoning. He suggested that a woman living in such a tainted atmosphere for days or weeks before delivery might be so far impregnated with poisonous particles that when delivery was accomplished (followed as it was by lower nerve tone and loading of her blood with effete products), her tissues would become a favourable breeding ground for septic germs. Moreover, there was the chance that these germs might be absorbed through such raw surfaces as a ruptured perineum would present, and so poison the system. Clinical evidence certainly showed that patients infected under these circumstances made a rapid recovery when moved into purer air. Again, hospital experience had abundantly proved that the better the sanitation of the building the quicker and more satisfactory was the repair of raw surfaces. In theory it was easy to assert that drain poisoning did produce one set of symptoms and true puerperal septicæmia quite another, but in practice these two were often so blended that it was difficult to differentiate one from the other.

The PRESIDENT said he was sure he should express the feeling of all present in thanking Dr. Hicks for his paper, which they had listened to with much pleasure, not only because of its intrinsic interest, but also as an evidence of the zeal for the promotion of obstetric science which Dr. Hicks, after so many years of active work for the Society, still retained. The paper raised some important questions. Some of the cases related by Dr. Hicks seemed to him (the President) to illustrate most forcibly the importance of antiseptics and the dangers from their neglect. Dr. Hicks stated that he did not know whether, in the cases mentioned, antiseptics were used or not. He (the President) thought they might safely assume they were not, for such things would not have occurred if antiseptics had been efficiently used; and if they had happened in the practice of one who had used what he supposed to be sufficient antiseptic precautions, they would have appeared to him so extraordinary that he would not have omitted to state fully what antiseptic precautions he had taken. Dr. Hicks had related a case in

which a gentleman made a post-mortem on a case of suppurative peritonitis, then attended patients in labour who got puerperal fever and died. Another gentleman attended a patient with erysipelas, dressed the wounds, and then went to cases of labour, having, as he supposed, prevented the carrying of infection by a period of abstention from midwifery practice. His patients got puerperal fever and died. In another case, a nurse went from nursing an erysipelas patient to nurse a puerperal woman, and the puerpera got erysipelas. He (the President) thought these lamentable events were just what might have been expected if these medical men and the nurse did not use proper care to disinfect themselves. He wished to express in the strongest way his concurrence with what Dr Boxall had said as to the futility, in preventing the transference of infection, of mere temporary abstention from practice. It was often recommended to medical men and nurses. He (the President) did not believe that any mere lapse of time would ever disinfect infected hands and clothes. On the other hand, if the person, instruments, and clothes were properly disinfected (which could be done in a few hours), there was no necessity for further abstention from practice. In one of Dr. Hicks's cases, it was suggested that the infection came from bad drains, the ground for this suggestion being that next door there was a foul drain and a patient suffering from diphtheria. He (the President) was aware that many cases had been published in which patients who were delivered in houses with defective drainage had been attacked with puerperal illness, and had begun to improve as soon as they were removed to a healthier atmosphere. These cases had been published to show that bad drains might cause puerperal fever. But he knew of no evidence that the relation between the drainage and the illness was anything more than coincidence. Evidence of the same kind had been published by Sir G. Johnson and others, to show the connection between bad drainage and diphtheria. But he (the President) thought that the result of recent investigation was more and more to shake this belief. A paper was recently read to the Epidemiological Society by Dr. Sweeting, in which that observer analysed the cases of diphtheria arising after scarlatina in the London Asylum Board fever hospitals over a term of years. This investigation was based on many cases, occurring in different places over a term of years, not in isolated cases. Dr. Sweeting had sought to trace a connection between diphtheria and the drains, but had entirely failed to do so. As to puerperal fever, there had recently been an outbreak occurring in the practice of certain midwives, in the Ogmore and Garw valleys in South Wales. This had been attributed by the local authorities to bad drainage (which, however, had been present long before the puerperal fever), and, acting on this view, steps had been taken

to put right the drainage system. But the outbreak of puerperal fever ceased before anything had been done to the drains. He did not deny that foul gases might make puerperal women ill as well as other people, nor did he wish to induce anyone to disregard the condition of the drainage of the house in which a woman was about to be confined; but he did not believe that bad drainage produced septicæmia, any more than it produced smallpox or scarlatina. He believed that puerperal septicæmia was produced by infection by contact. It did not necessarily follow that the medical man was always the vehicle of contagion, or even that it was always either the medical man or the nurse; although, and in the great majority of cases, it was one of these two. With regard to the remark of Dr. Routh, connecting infection with a low barometric pressure, he would remind the Society that the chart accompanying Dr. Boxall's paper read at the last meeting, contained a line showing the barometric pressure, so that the relation of this pressure to the incidence of puerperal disease could be seen from it at a glance.

Dr. Peter Horrocks said that so long as a medical man was in active attendance upon a puerperal fever case of the grave type, he was unfitted for attending midwifery cases. It often involved great inconvenience, unmerited blame, and loss of money and credit; but at the same time a woman had far better have no attendant at all than be attended by a doctor under the circumstances mentioned. The doctor ought to devote himself entirely to his puerperal fever case, or he should get someone else to do so, a locum tenens or an assistant, if he desired to continue his own practice. If he continued his attendance on the case, then his other midwifery cases should be attended by a locum tenens, assistant, or some neighbouring practitioner. After he had ceased attendance either from the death or convalescence of the patient or by placing her into other hands, the question arose how soon could he become aseptic and fit to resume midwifery practice. Whilst admitting the possibility of time not destroying germs, yet he thought that it would have the same effect practically by ultimately getting rid of the poison. He did not think it proved that a man was free from poison because he attended an ordinary midwifery case and it did well. An accoucheur might attend several patients in labour whilst he was in actual attendance upon a puerperal fever case, but before he had so diagnosed it, and all these cases might do well. But he (Dr. Horrocks) thought he had practically tested himself, and thus proved the possibility of absolute disinfection in forty-eight hours. Some years ago he had examined *per vaginam* and syringed out a woman suffering from virulent puerperal fever on the eighth day after confinement. She died the next day, and in forty-eight hours after the examination he (Dr. Horrocks) had performed Cæsarean section, both

mother and child doing well. No doubt disinfection could be accomplished in even a shorter time than this. The process he adopted consisted in a change of all garments, a bath, repeated washing of the hands, and placing them in an antiseptic solution.

Dr. HAYES considered that the changing of the medical attendant's clothes, unless they were soiled by discharge, on going to another patient, was unnecessary. What was wanted was thorough and completely reliable cleansing of the hands, not mere washing with soap and water, but that conjoined with a reliable antiseptic, such as 1 in 20 solution of absolute phenol —it should not be weaker. Sir Joseph Lister had just recently declared that that was the most trustworthy antiseptic solution, and could always be depended on. When the hands had been so purified, the fingers should be dipped prior to each vaginal examination in 1 in 40 carbolic solution, and lubricated with carbolised oil or vaseline. If these precautions were rigidly followed, Dr. Hayes thought refusal to attend a lying-in case on the ground that the practioner had already a septic case was unnecessary, though it might be prudent; if, however, they were observed, septic cases would not occur. Dr. Hayes thought the influence of drain poison or miasma had been greatly exaggerated as a cause of puerperal septicæmia. But in his opinion it was a cause. Take, for example, the case of delivery with ruptured perineum, or higher vaginal tear, and could it be doubted that a vitiated atmosphere arising from emanations from drains might render septic such wounds, and so give origin to general septic phenomena?

Dr. BOXALL, in reply to Dr. Hayes, said that, with reference to the comparative value of carbolic acid and sublimate as antiseptic agents, he still preserved an open mind. The recent abandonment of sublimate for carbolic acid by Sir Joseph Lister appeared to him to be founded mainly, if not entirely, upon experiments in which certain disturbing elements seemed to have been left out of consideration. As hitherto, in obstetric practice at any rate, the best results had been obtained by sublimate, he was not disposed at present to revert to carbolic acid.

Dr. DUNCAN could not agree with Dr. Hayes in thinking that it was unnecessary for a medical man who had attended a case of puerperal septicæmia to change his clothes before visiting a midwifery case; he thought it a very dangerous doctrine to promulgate that the clothes did not carry infection. On the other hand, they could be thoroughly disinfected by hanging in a room in which some iodine crystals were vapourised over a spirit lamp. If this were done, a bath taken, and the hands washed in soap and water and then dipped for five minutes in a 1 in 1000 mercury solution, he considered thorough disinfection could be procured in twenty-four hours.

Dr. LEWERS said he believed that complete personal disinfection was quite possible, and therefore he did not think it at all essential for a man to abstain from midwifery practice because he happened to have examined a case of puerperal fever. He pointed out that every obstetric physician was constantly having to examine such cases, either at the hospital or in private practice, and also others, such as advanced cases of cancer of the uterus, the discharges of which were well known to be capable of causing puerperal septicæmia, yet by adequate personal disinfection obstetric physicians were able to attend midwifery without any ill effect; and not only that, but they were able to perform ovariotomy and other operations requiring opening of the peritoneal cavity with the best results. This was a very delicate test of asepsis, and told strongly in favour of the view that they should not trust to time as a disinfectant, but to changing the clothes and to the thorough cleansing and disinfection of the hands by soaking in an efficient antiseptic solution, such as 1 in 1000 corrosive sublimate lotion. He was very sceptical as to bad drains having much to do with causing puerperal fever.

Dr. AMAND ROUTH was surprised at the small importance which the President appeared to attach to the influence of sewer gas in the production of puerperal septicæmia. If the recovery of patients after their removal from such influences was merely a coincidence, it was a very frequent one. He narrated a case where rapid and complete recovery from hyperpyrexia and pelvic tenderness took place when the patient was removed by Dr. Matthews Duncan's advice from the lying-in room, which was separated from the water-closet by an intervening dressing room only. Similar cases were very common. Dr. Boxall's paper of last month, read before the Society, also tended to show that deficient ventilation was the cause of the increase of puerperal septicæmia during the winter months, pointing to the presence of impure atmosphere as being the evil influence. He also narrated the case of a woman, now in Charing Cross Hospital under the care of his colleague Dr. Watt Black, who had been confined in a room over a butcher's shop where a very offensive odour was always present. The woman's temperature rose next day, and at the end of a week was 106·2° F. She was then removed to the hospital, and no organic lesion being present, the only other symptom beyond headache and nausea was a foul uterine discharge, which was treated by dilatation and blunt curetting. This, however, did but little good, and the patient had still (a month after labour) a temperature of 102°, but no discoverable cause to account for it beyond the initial poisoned blood. These and other cases showed, in his opinion, that atmospheric influences, and especially sewer gas, might have a very serious effect on a puerperal woman.

Dr. CULLINGWORTH thought Dr. Hicks's paper a valuable contribution to the natural history of puerperal disease when its course and mode of spread were undisturbed by antiseptic methods. He considered it a very dangerous doctrine to send forth that puerperal septicæmia could be caused by defective drains and sewage emanations. There was no evidence that would bear criticism in favour of such a view, and to preach such a doctrine was to divert the attention of those engaged in the practice of midwifery from the point of real importance, viz. personal cleanliness. It was so easy to blame a drain, that when a case of septicæmia occurred the temptation to do so was very great, especially as there were very few houses which would bear close sanitary inspection. He agreed with the President as to the unimportance of the time element in ridding a medical practitioner of infection. If thorough personal disinfection was carried out, he did not think abstention from practice at all necessary after attendance upon a case of puerperal septicæmia.

Dr. FRANCIS TAYLER said as to the influence of microbes and the consequent necessity for observing strict antiseptic precautions there would probably be no two opinions, but after what he had just heard he should like to ask whether it was to go forth as the dictum of that Society that the presence or absence of sewer gas in the bedrooms of parturient women was a matter of little or no consequence? He quoted cases from obstetrical and surgical practice which pointed the other way, and related an instance in which a whole family except one were seized with diphtheria, when it was found that sewage had made its way under the basement floor from the next house, where, however, there was no illness of any kind present.

Dr. WALLACE did not feel disposed at that late hour to enter into the discussion which had taken place on a subject away from the main object of the paper, but desired to point out that the two cases referred to by Drs. A. Routh and Tayler tended to support the thesis indicated by the President that there was no positive proof of the existence of a causal relation between sewer-gas poison and puerperal septicæmia. Dr. Routh's case in which the late Dr. Matthews Duncan was consulted, and who concurred in the patient's removal from a bedroom near a closet in a doubtful sanitary condition, and the immediate disappearance of the pyrexia and other symptoms, demonstrated very distinctly that the patient was not suffering from puerperal septicæmia but from sewer-gas poisoning. The sequel of the other well-known case proved also that the pernicious surroundings had occasioned the high fever, but certainly not puerperal septicæmia.

Dr. BRAXTON HICKS, in reply, said that, although Dr. Cullingworth's remarks as to what was to be learnt from these

cases was nearer the point than the other speakers, yet he thought they asserted the need for extreme care lest they might see similar in their practice. He had mentioned the atmospheric surroundings because, in looking at the causes of these puerperal diseases, it was proper to include all things which might act detrimentally to the pregnant and puerperal woman, and because in reviewing a large series of these causes we might then be able to see what surroundings were or were not detrimental. He had therefore, amongst other things in these cases, inquired into the possibility of sewer gas being a cause of evil. At present they were ignorant on many of these points, and till they had cleared them up they could not speak with the positiveness that many of the speakers had done. They used the term sepsis and septicæmia, but as a matter of fact they did not know their nature, neither did they know what sewer gas was nor how many poisons it might contain; what they did know was that it produced detrimental effects on the system; and in a lying-in woman ill health interfered with the reparation necessary of those parts bruised, ecchymosed, and lacerated by labour, and so they might have absorption of unhealthy matter, and that whether any specific agent had been introduced or not.

DECEMBER 6TH, 1893.

G. ERNEST HERMAN, M.B., President, in the Chair.

Present—50 Fellows and 6 visitors.

Books were presented by Dr. Frommel, Mr. Heape, Dr. Lewers, Messrs. Adlard and Son, the Medical Society of London, the Edinburgh Obstetrical Society, and the Medical and Chirurgical Faculty of the State of Maryland.

George F. Blacker, M.B., B.S.Lond., F.R.C.S.; S. Bueno de Mesquita, M.B., B.S.Lond.; and Robert James Probyn-Williams, M.D.Durh., were admitted Fellows of the Society.

Richard Alcock, M.B.Vict. (Goole); Leonard Grant, M.D.Edin. (New Southgate, N.); Francis G. Swayne, M.A., M.B., B.C.Cantab. (Upper Norwood, S.E.); and Robert D. Muir, L.R.C.P.Lond. (New Cross Road, S.E.), were declared admitted.

The following gentlemen were elected Fellows of the Society:—Frederick William Gordon, L.R.C.P.Lond. (Norwich); Thomas Herbert Morse, F.R.C.S. (Norwich); William Sutton Pratt, M.D.; Israel James Edward Renshaw, F.R.C.S.Ed. (Sale).

The following gentlemen were proposed for election:—John Campbell, M.A., M.D.Dubl., F.R.C.S. (Belfast); Charles Robert Mortimer Green, L.R.C.P.Lond. (India);

Bruce Hamilton, L.R.C.P.Lond.; Alfred Featherstone Kellett, M.B., B.C.Cantab. (Lewisham Road, S.E.); Arnold W. W. Lea, M.D. B.S.Lond., F.R.C.S.; Henry Lawrence McKisack, M.D.Dubl. (Belfast); and Hugh R. Smith, M.B.Lond.

A letter from Mrs. Graily Hewitt, thanking the President, Council, and Fellows of the Society for their vote of condolence on the death of the late Dr. Graily Hewitt, was read.

TRANSFUSION BOTTLE, ETC.

Exhibited by HERBERT SPENCER, M.D., M.R.C.P.

1. A transfusion bottle for injection of saline fluid, described and figured in the 'Lancet' for June 18th, 1892.

2. A wire clip to fix on the rim of a jug or bottle, and improvise a douche. The clip had two rings which held and prevented from kinking a piece of india-rubber tubing which reached to the bottom of the jug containing the liquid, and was about six feet long beyond the bottle. By winding the tube around a cylindrical body the air was expelled through the inner end of the tube which lay in the solution, and then, on holding the outer end of the tube and unwinding, the fluid filled the tube and began to flow by syphon action.

3. Sealed glass tubes containing two drachms of chloride of sodium in a sterilised saturated solution. They were quite clean and aseptic (being sealed during ebullition), and saved much time and trouble in preparing normal salt solution.

Dr. HORROCKS said he was glad that Dr. Spencer had shown this apparatus for the injection of saline fluid, because it would serve to contrast with his own. The bottle shown was undoubtedly cumbersome and complicated, and was designed to

avoid the admission of air and dirt. As a matter of fact both these could be excluded by the simple apparatus which he showed at the Society last year, and which had been exhibited at Newcastle at the meeting of the British Medical Association this year. He carried it in his pocket, and therefore was always prepared for any emergency, whereas Dr. Spencer's was much too large to be carried regularly in the obstetric bag. He did not understand Dr. Spencer to recommend the apparatus of the jug and clip for transfusion, he thought he had recommended it for using as a douche, but if he did recommend it for intravenous injection then it was merely a modification of his, and was not, he ventured to think, either so simple or so convenient.

LARGE DERMOID CYST WITH DENTIGEROUS PLATE.

By Leith Napier, M.D., M.R.C.P.

INTRAVENOUS INJECTION OF SALINE SOLUTION IN CASES OF SEVERE HÆMORRHAGE.

By Peter Horrocks, M.D., F.R.C.P.,
ASSISTANT OBSTETRIC PHYSICIAN TO GUY'S HOSPITAL.

Transfusion of fluids of different kinds in cases of severe hæmorrhage has been advocated and practised for centuries. Until recently the transfusion of blood, either directly from arm to arm, or indirectly, withdrawing the blood from the giver, removing the fibrin, and then injecting into the receiver, has been recommended in the various text-books. Most of the apparatus in use has been arranged for this operation. The transfusion of various saline solutions has also been tried with varied results by different physicians.

It must have been the experience of many to see transfusion carried out in the manner advocated, and about eight to ten ounces, or even more, of blood or of saline solution have been thrown into the circulation. If the patient died it was thought to be due to the fact that she was too far gone to be revived, rather than as in any way due to the transfusion or to the fluid tranfused.

The late Dr. Wooldridge, an original thinker, held very strong views regarding the question of the transfusion of blood. He believed that not only was it useless, but that it was injurious. Indeed, he thought that when the transfusion had been ably conducted so far as getting the blood into the circulation, the death of the patient was almost sure to follow, and if it did not, there was little, if any, credit due to the transfusion.

Dr. Wooldridge first spoke to me on this subject in 1885. We intended to try an intravenous injection of

salt and water in the first suitable case that occurred. Unfortunately he was cut off suddenly, and he left behind him no notes on this subject. Since his death, however, I made his views known as far as possible at Guy's, and the first successful case was published by Mr. Lane in the 'Lancet' in 1891. We have had a good many successes since, but I shall, however, give you details of those cases only with which I have had to do myself. Before doing so, however, I will lay before you, as clearly as I can, the theories and the facts which led up to this method of transfusion.

1. When a person is dead from rapid hæmorrhage there is still in the body sufficient blood to carry on life, if it can be circulated.

2. Theoretically half the volume of blood could do the same work if it were given double the velocity.

3. Death from hæmorrhage is due to failure of the heart, and this is due to want of extension owing to the fall in the blood-pressure.

4. This blood-pressure can be raised if as much fluid be transfused as there has been blood lost.

Kronecker and Sander, in 1879, experimented on dogs with saline fluid, *vide* 'Berliner klinische Wochenschrift' for December 29th, 1879.

The following experiment was made by Dr. Wooldridge, confirming their results in a striking manner:

Two dogs as nearly equal as possible in breed, age, size, weight, and strength, were taken and bled to death by opening a vein in the neck. When it is said they were bled to death, it means that they were bled until they ceased to breathe and pulsations were no longer palpable. One of the dogs was left untouched, and never showed signs of life again. The other was transfused by means of an apparatus consisting of a cannula for the vein, a piece of tubing, and a syringe. As much water (containing a little salt) was injected as the blood which had been lost. This blood was caught in a vessel, and so its volume was known. The dog immediately jumped up,

ran about, and ate a beefsteak, and showed no signs afterwards of any ill effects following the experiment.

It will be obvious from this experiment that the bleeding vessel was secured, so that as the saline solution was injected no further hæmorrhage took place.

Since September, 1891, this method has been used at Guy's very largely, not only in cases of severe and moderate hæmorrhage, but also in cases of collapse without hæmorrhage. I have, however, no experience whatsoever of copious intravenous transfusion of saline fluid for cases of simple collapse. Theoretically, I should have argued that although the immediate effect might be beneficial by supplying more fluid to an underfilled heart, yet when reaction took place the bulk of the blood temporarily lodged in, say, the large vessels of the abdomen, re-entering the general circulation might cause over-distension of the heart and thus prove fatal.

As to the cases of hæmorrhage in which transfusion should be tried, I think no case should be allowed to die from loss of blood without this therapeutic measure being tried. It was our custom in the Guy's Charity when blood was used as the fluid, never to transfuse if a pulse could be felt at the wrist, and it will be noticed in all the cases I have brought forward to-night the patients had lost so much blood that no pulse could be felt at the wrist. But I think it is quite possible for a person to lose so much blood that it proves fatal, and yet there is a pulse at the wrist even after the bleeding has ceased. Thus a surgeon performs an operation involving a considerable amount of hæmorrhage. When all the vessels have been secured so as to prevent further loss, and the operation is completed, it is found that, although feeble, there is still a distinct pulse at the wrist. The patient is put to bed, and perhaps rallies to some extent, but some hours later death takes place. Our literature contains many such cases. Post-mortem examinations reveal that no further hæmorrhage has taken place. The death is attributed to shock, exhaustion, or syncope.

I think with those who believe that the heart failed through the fall in the blood-pressure, that this pressure was maintained for some hours by the vaso-motor system, but when this failed a fatal syncope resulted. If this view be correct it is obvious that many such cases may be saved by a timely intravenous injection. I do not think this operation should be done in trivial cases, but I do think that where a patient is known to have lost a large quantity of blood, an equal amount, as near as can be calculated, of saline fluid should be injected into the veins, even though the patient is not in a pulseless condition.

I have never seen any harm result from transfusion, except a little suppuration in the wound over the vein, a little pyrexia within two or three days, and a rapid pulse. The latter is obviously physiological, inasmuch as the blood-corpuscles are so diminished in number, necessitating greater velocity in order to accomplish an equal amount of work in a given time.

I am sorry that my spare time has been too little to permit me to refer to the work of others on this subject. I have recorded here simply my own experience. I have not touched upon the question of rectal and subcutaneous injections, which are both interesting and important, but I think they are only useful in the less serious cases. Neither have I had any experience in adding alcohol in any form to the fluid used.

Case 1.—E. L—, aged 29, married five years, one child three years of age, never pregnant since ; no miscarriages. Periods regular to the day, as a rule. Last period five weeks ; a few days ago began to have pain in the abdomen. This got worse, and Mr. L. Stokes of Eltham was called in. He kept her in bed and applied hot flannels and gave a sedative. The pain increased in severity, and the patient became paler. At 7 a.m. Mr Stokes found her blanched. At 9 a.m. I saw the lady at Lee with Mr. Stokes, and her condition was so serious that immediate operation was decided upon. Mr. L. Burroughs kindly

gave the anæsthetic, and Mr. L. Stokes ably assisted. There was no nurse, and we three had to manage as best we could. The abdomen was opened and was found to be full of blood. The left broad ligament was immediately clamped with a long pair of clamp forceps, and sponges were then stuffed into the wound in order that transfusion might be done, the patient being quite pulseless and apparently moribund. Having begun the intravenous injection, I handed it over to Mr. Stokes, who went on with it whilst I continued the operation. The abdominal cavity was cleared of blood as far as possible, a jugful of water was poured into it and then sponged out, the left ovary and tube were removed, and the broad ligament ligatured. The abdominal wound was then sewn up, leaving an india-rubber drainage-tube at the lower end.

The patient had then ceased to breathe, and there was no pulse at the wrist; artificial respiration was performed, and in a few minutes she breathed again. The bandages were now found to be saturated with blood. Fearing fresh hæmorrhage, the abdomen was again opened, and a lot of blood cleared out. It was, however, only some blood that had lodged high up in the abdomen, and which had been driven down during the movements of the artificial respiration. When she was sewn up again and carried to bed the case seemed hopeless, but transfusion was persevered with until quite six pints in all had been injected. The pulse could then be felt feebly at the wrist, and to make the story short she got well without a bad symptom, beyond some suppuration along the track of the drainage-tube. The operation was performed in November, 1892. She is living and well at the present time, menstruating regularly without pain (October, 1893). I examined the parts removed, and pass them round to-night. You will see that it is a tubal fœtation which ruptured very early. It was impossible to say that it was an ovum until it was examined microscopically, but under the microscope the villi of the chorion are unmistakable; I have put specimens on the table to-night.

The water used in this case had not been boiled. Its temperature was guessed at, and a handful of salt was thrown into a jugful of the water.

Case 2.—On the evening of the 17th February, 1893, I was asked to see a case with Drs. Creed and Owen in West Kensington. The patient was aged 33, married, with three children, the youngest five and a half years of age. She was generally regular every four weeks, lasting two days. Her last period was at the end of November, 1892. Her first attack of pain in the abdomen was February 13th; she got better and had another attack on the 16th, when she was blanched. She became more blanched on the 17th, and a consultation was held. Ruptured tubal gestation was diagnosed and immediate operation was advised. The patient's surroundings were unsatisfactory, and one of the children had scarlet fever; she was therefore brought to Guy's in a brougham wrapped in blankets. On arrival at Guy's Hospital at 1.30 a.m., February 18th, everything was ready for operation, and the patient was carried from the brougham on to the operating table. Ether was used as the anæsthetic, and very little sufficed to produce anæsthesia. Antiseptic measures were adopted, and the abdomen was opened by an incision three to four inches long. A black mass was seen through the peritoneum before it was opened. Its cavity contained a large quantity of dark blood, both fluid and in clots, caused by the bursting of the ovum from the outer part of the right Fallopian tube. When the mass was raised out of the pelvis, the sac ruptured and the fœtus escaped. The pedicle was ligatured and the parts removed. The abdomen was irrigated thoroughly with hot water, and the wound was sewn up with silkworm-gut sutures, a glass drainage-tube being left in Douglas's pouch. During the operation the patient became pulseless, and hot water (102°) with salt (about ʒj to Oj) was injected into one of the venæ comites of the right brachial. The student who was operating tried the median basilic vein first, but he cut it to pieces, and so a fresh incision

was made along the course of the brachial. About five pints were injected in twenty to thirty minutes. The pulse was then felt distinctly at the wrist, beating at the rate of 120 per minute. After the operation the patient was carried into the general ward. The fluid was drawn from the drainage-tube every half hour at first. Three ounces were thus withdrawn during the first six hours. The next day, about twelve hours after the operation, milk and barley water, ʒj of each mixed, were given by the mouth every half-hour, and nutrient enemata every two hours. The patient made a good recovery; her temperature, however, averaged 99·5° the first three days, reaching 101° on the fourth day, and 103·4° on the eighth day. On the fourth day there was some vomiting and diarrhœa. But it was discovered that the patient was phthisical, and it was thought this might have something to do with the symptoms.

The sutures from the two wounds in the arm were removed on the eighth day.

The drainage-tube was kept in the abdomen until the fourteenth day because the fluid withdrawn did not lose its red colour. When the glass tube was withdrawn an india-rubber drainage-tube was inserted. This was gradually shortened, but was not removed completely until two months after the operation. She was then transferred to a medical ward under the care of Dr. Goodhart, who treated her lung trouble. She finally left the hospital and went to a convalescent home. In August, six months after the operation, she was looking and feeling much better, but still had a bad cough with muco-purulent expectoration.

Case 3.—On the 26th October, 1892, I was asked by Dr. Roberts of Peckham Rye to see E. S—, aged 28; married six years, had been twice pregnant, one resulting in a miscarriage at the third month, and the other in a premature labour at the seventh month. This was nearly five years ago.

The patient was usually regular, but had seen nothing for two months. Two weeks ago, whilst walking about the house, she felt a violent pain in the stomach, and went to bed, where she remained two days. A week later she was doing her work again when she had a second attack of pain with vomiting; she also passed some blood *per vaginam*. Poultices were applied to the abdomen, and she was kept in bed. On the 26th October she got out of bed to pass water, when she became faint and deathly white. When I saw her the abdomen was slightly distended, very tender, and an indistinct thrill could be felt. *Per vaginam* an indefinable something could be felt through the roof, and *per rectum* this something was more perceptible.

Ruptured tubal gestation was diagnosed and immediate operation was recommended. Suitable surroundings were unattainable, and the patient was brought to Guy's in an ambulance. She was carried straight to the operating table (2.30 a.m.).

The abdomen was found full of blood coming from a ruptured left tubal gestation. The parts were removed, and the abdomen was washed out with hot water; much difficulty was experienced in getting rid of pools of blood lodged amongst the coils of intestines.

Before the operation the patient became quite pulseless, and intra-venous injection was commenced as soon as the pedicle was tied. Six pints of saline solution (at 102° F.) were injected into the right median basilic vein. The pulse could be felt at the wrist when the operation was over. Nutrient enemata consisting of brandy ℥iss, yolk of one egg, and peptonised milk alternating with peptonised beef tea ad ℥v, were given every three hours.

A glass drainage-tube was used, but as the fluid became nearly clear, the tube was removed on the fourth day. The pulse was 120 after the operation, and for a day or two the temperature was as high as 101° F.; on the fifth day it was 102·8°. The abdominal stitches were removed on the

seventh day. The arm wound suppurated a little and it was dressed with boracic ointment. The patient made a good recovery and left the hospital on the 24th of November, four weeks after the operation. In August, 1893, she was in good health, and I failed to recognise her owing to the colour in her cheeks.

Case 4.—A. T—, aged 36; eleventh pregnancy; said to be seven months pregnant; attended in the Guy's Hospital Lying-in Charity by Mr. R. Hewlett Hayes. When first seen the patient stated that she had fainted the previous day whilst defæcating, and that she had been in pain ever since.

The os was fairly large, but the membranes were not ruptured. Later they burst, and liquor amnii escaped and then gushes of blood. The vertex was presenting. Dr. Horrocks and the two resident assistants, Messrs. Mason and Davies, came down, and under an anæsthetic the cervix was further dilated by Champetier de Ribes bag, podalic version was performed, and a dead male child was extracted. During this operation the patient became pulseless at the wrist, and injection of saline fluid was begun in the median basilic vein. When six pints had been injected there was a distinct though weak pulse at the wrist. As there was no further hæmorrhage and the uterus was well contracted, Dr. Horrocks and the senior assistant, Mr. Mason, left. About an hour and a half later the patient's pulse again became imperceptible at the wrist. The median basilic vein on the other side was opened and more saline solution was injected. The pulse became perceptible, but was only very feeble and soon disappeared, and the patient died.

A post-mortem was made and a large effusion of blood in the left broad ligament was found, and a tear in the cervix uteri extending upwards to the left broad ligament. There was no blood in the peritoneum.

Case 5.—J. M—, aged 44, married; nine children; admitted into Guy's Hospital August 2nd, 1892, for

uterine hæmorrhage which was due to cancerous growth in the cervix uteri.

It was decided to remove this growth by means of the galvanic cautery. When the platinum wire was fixed round the cervix, the man in charge of the battery turned on much too strong a current; the wire became white-hot, and rapidly cut through the enclosed tissues. Severe hæmorrhage was the result, and it was found that both broad ligaments were opened, the pouch of Douglas was opened, and the base of the bladder was damaged. Some of the large bleeding vessels were caught with catch-forceps, an attempt was made to sew up the peritoneum, but the parts simply broke away and made the hole larger. Packing with long strips of iodoform gauze was therefore resorted to, and pressure was made by means of a T-bandage. The patient was very collapsed afterwards, and after about sixteen hours the pulse, previously very weak, became imperceptible at the wrist. Saline solution was injected into the right median basilic. Three pints three ounces were injected. The pulse was then distinctly felt at the wrist.

In two days the temperature was 101·2°, and the pulse 148. On the fourth day the vaginal plug was removed. It was rather foul. The vagina was gently syringed with a solution of boric acid. On the twelfth day urine flowed from a large vesico-vaginal fistula.

The patient recovered from the operation and is still living (August, 1893), but an attempt to cure the vesico-vaginal fistula was a failure, and, as the cancer has recurred in the pelvis, no further attempt will be made.

Case 6.—On February 22nd, 1893, I saw a lady with Dr. Hartt, of Greenwich. She had been married eleven years and had never been pregnant. She had missed her periods for two and a half months, having been previously regular. She had pain in the abdomen recurring now and then and causing some collapse.

When I first saw her she was pretty comfortable but

the abdomen was slightly tender, slightly distended, and *per vaginam* an indefinable mass could be felt through the vaginal roof, more especially behind.

Ruptured tubal gestation was diagnosed and abdominal section was recommended. This was done and the abdomen was found full of dark blood, fluid and in clots, and a two and a half months' gestation was found in the right Fallopian tube. Unfortunately the anæsthetist did not keep her fully under, and the spasm of the recti abdominis muscle was so great that it was impossible to work. The result was serious hæmorrhage on partially separating the mass from the bottom of the pelvis. Ultimately the parts were removed, the fœtus measuring over 3 inches in length.

The nurse on counting the sponges said one was missing. This was hunted for a long time but it was not found. Injection of saline fluid was then begun, as the patient had become pulseless at the wrist. Mr. A. T. Rake kindly did this for me in a very able manner. As the sponge could not be found, an extensive and careful search was made everywhere in the abdomen; at last the nurse admitted that she was in error and the sponges were all right. Six pints of saline solution were injected and the pulse was perceptible at the wrist. The patient rallied very well, but showed signs of peritonitis and died on the fourth day. A post-mortem revealed suppurative peritonitis.

Before concluding, I would like to mention a case which occurred in the spring of this year.

Case 7.—I was asked to see a patient in Camberwell with Dr. Carré. She was young, and had not been married very long. She had been ill with pain and collapse before coming to Camberwell, and when Dr. Carré saw her he advised a consultation. Her husband declined, but the next day she was in such an alarming state that he consented.

On arrival we found her blanched, with a weak rapid

pulse. The abdomen was tender and rather full. On vaginal examination the uterine mobility was not good, and the pouch of Douglas obviously contained something that was abnormal. No bimanual examination was possible. I suggested abdominal section, but the husband refused to allow her to be touched until he had obtained the consent of his mother-in-law, of whom he seemed to be in dread. We left, and a few hours later I received a telegram to say they were bringing her to Guy's. I had everything prepared, and she was carried from the brougham on to the operating table, but she expired just as she was laid on the table. Brandy was injected subcutaneously, artificial respiration was tried, and then my assistant opened the right median basilic vein and commenced intravenous injection of saline fluid. There was absolutely no result; after a few pints had been injected I opened the abdomen, which was full of blood, and removed the specimen of ruptured tubal gestation, which I show to-night. The injection was continued until six pints had been used.

This case shows not only the danger of delay, but also that the heart and vessels do not long retain their power of carrying on the circulation if it once stops.

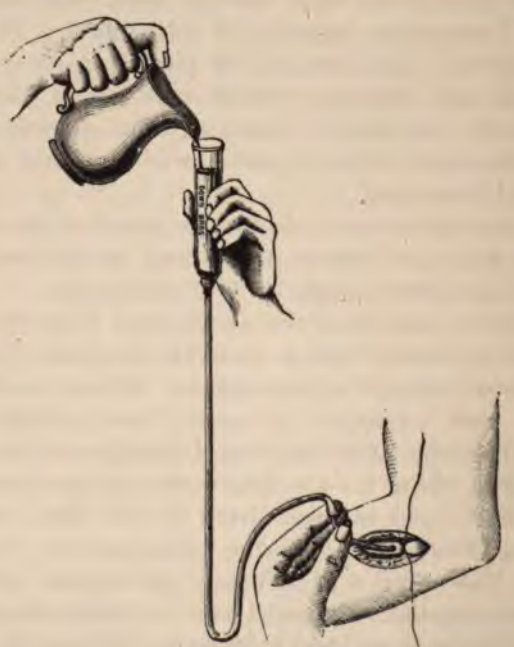
It will be seen from the above cases that the patient has a much better chance when the bleeding vessels can be secured before the transfusion. Hence, it does not offer so good a prospect in cases of post-partum hæmorrhage where the vessels are out of reach as in cases of cut throat, &c., where the bleeding points can be clamped.

The fluid used in transfusion of this kind, and done with the object of raising the blood-pressure, should be water. The addition of salt may perhaps be useful, but it is not essential. When it can be obtained easily it is best to boil the water, and then to cool it down by placing ice or cold water outside the containing vessel until it reaches 39° C. (= 102·2° F.). It cools down to blood heat, 37·7° C. (= 100° F.), as it passes along the transfusion apparatus. If at hand common salt may be added

in the proportion of a teaspoonful to the pint of water.

The amount of fluid injected varies in different cases; the object is to replace the blood lost by an equal amount of fluid. In the worst cases six pints have been used, but in less severe cases two, three, four, or five pints will be found enough; the criterion being the condition of the radial pulse, which will be felt with the finger beating distinctly when sufficient fluid has been injected.

Last year I showed at this Society a simple apparatus for effecting this injection. The essential parts consist of a cannula, a piece of tubing three or four feet long, and a glass funnel. As the two latter can be obtained in



almost any house, it is only necessary to carry the cannula in order to be always provided potentially with an apparatus.

For the sake of those who may not have seen the operation done, I will describe it.

Operation.—Make an incision about one inch long, and expose the median basilic or any other vein of not less calibre. In some cases it is found useful to cause filling of the vein by tying a pocket handkerchief or bandage round the arm. With a needle pass a silk, or gut, or other ligature, under the vein, cutting it so as to leave two ligatures. Draw one to the lower angle of the wound, and tie it round the vein by a double knot, cutting the ends short. With the dissecting forceps pinch up the vein and make a small snick in it with scissors, taking care not to sever the vein completely. Introduce the cannula (silver or glass) into the vein, and tie it in by means of the upper ligature, leaving the ends long as in the diagram. The blood will flow down the cannula, and when it is full the rubber tubing previously attached to the glass funnel and filled with saline solution is fixed on the end. The funnel is now raised, and as the water flows it is replaced by pouring in more saline solution from a jug held close to the rim to avoid the causation of air bubbles. As long as the funnel is kept above the level of the cannula, air bubbles will always rise to the surface and escape. Another method of introduction, and one recommended in severe cases, is to fix the funnel and cannula in the tubing, fill the apparatus with salt solution until it runs out warm, and then to introduce the cannula into the vein, the funnel being held by an assistant slightly higher than the cannula, so as to keep up a gentle flow which washes away the oozing blood, and ensures the absence of all air.

The speed at which the fluid is injected can be regulated by raising or lowering the funnel. In most cases a distance of about three feet is sufficient, and the flow is found to be about a pint every four minutes.

When enough has been injected, remove the cannula from the vein. Cut the latter completely across, and tie the upper end with the long ends of the ligature. Sew

up the wound with a continuous or interrupted fine silk or other suture, and fix a clean pad with a bandage.

Summary.

1. Transfusion of blood is useless and probably injurious.
2. Water with or without salt should always be used.
3. The amount injected should equal, as far as possible, the amount of blood lost.
4. Enough fluid should be injected to cause the pulse to be perceptible at the wrist.
5. The worst cases require about six pints.
6. No patient should be allowed to die from severe hæmorrhage without an attempt being made to save by injection of a copious quantity of fluid.
7. In less severe forms of hæmorrhage where the patient is in a low condition, though not pulseless, intravenous injection of several pints (two to five) of saline fluid should be given, to avoid secondary syncope.
8. In the more moderate cases each one must be judged on its merits, but when in doubt it is better to inject; many of these, however, will rally by copious watery injections into the rectum, or by subcutaneous injections into the cellular tissue between the shoulders and other parts.

For those who wish to refer to the literature on this subject I would mention the following:

Kronecker und Sande ('Berliner klin. Wochen.,' December 29th, 1879).

Mikulicz ('Wiener Klinik,' 1883–4).

Schwartz ('Medical Times and Gazette,' 1881).

Jennings ('Transfusion,' 1883).

Herbert Spencer ('Lancet,' June, 1892).

Dr. ROUTH would not discuss Dr. Horrocks's paper directly, but refer to some points arising therefrom. He was somewhat surprised that Dr. Horrocks, in quoting authorities on the subject of transfusion, had not referred to a committee on

transfusion appointed during the early days of this Society, and including some of the most distinguished obstetricians of the day. As one of the then junior members of that committee, he could say that that inquiry was very exhaustive and brought out some most interesting results. Amongst others, one he remembered, viz. that to inject a potash salt proved invariably fatal. Dr. Horrocks had spoken of saline salts to be injected—hence it was essential to state precisely the saline employed, both as to quality and quantity. Then Dr. Horrocks had stated that the transfusion of blood was to be condemned. Now he, Dr. Routh, years ago ('Med. Times,' vol. xx) had collected every case of transfusion he could find in medical works (forty-eight) in which, either from the human subjects or animals, it had been tried, and speaking from memory, except when taken from the lower animals, he had found it was not invariably fatal, quantity having a great deal to do with the result, and the mortality being only 1 in 8½. Another paper had been read on transfusion later on before the Royal Medical and Chirurgical Society, in which the subject was very ably discussed. Then Dr. Horrocks had not referred to Sir Benjamin Richardson's experiments on the injection of warm water into the veins in dogs previously copiously bled. If he, Dr. Routh, remembered rightly, the heat of the water so transfused was held to be a great factor in the experiments. Moreover, placing animals so depleted over a hot substance, even a dunghill, led to their resuscitation. Dr. Routh stated he also remembered, when a boy, reading about some experiments performed at New York almost immediately after execution by hanging. In these hot water was injected into the veins. Thereupon the dead man got up and attempted to walk and to strike those around him, then fell down again. This was tried two or three times, each time with less effect on the body. Now, Dr. Routh thought it was a pity that Dr. Horrocks should have almost limited himself to quoting foreigners and neglecting the English authors.

Dr. Heywood Smith asked why Dr. Horrocks had used a drainage-tube in the three cases of ectopic gestation when he had done abdominal section, as, the source of bleeding being stopped, no further oozing was to be looked for, and in one at least of these cases the recovery seemed to have been retarded by the use of the tube. Did he consider that in cases where the hæmorrhage had been going on for some time the clots got firmer, and therefore more difficult to dislodge at the time of the operation?

Dr. Herbert Spencer drew attention to a paper he had published in the 'Lancet' for June 11th and 18th, 1892, upon the subject of intravenous injection of normal salt solution for the grave hæmorrhages of midwifery. His first case occurred on April 24th, 1888, and it was, as far as he knew, the first

successful one. He thought the injection-bottle described in that paper or some similar apparatus was the best for the purpose of introducing the fluid. In the absence of this bottle, which he thought should be always used in public institutions, an excellent substitute could be made with a jug or bottle and a piece of india-rubber tubing held in the jug by a clip [which he exhibited]. He always carried these in his midwifery bag, and had used them for several years for vaginal douching; all that it was necessary to carry in addition was a cannula. He cordially agreed with Dr. Horrocks in recommending that no patient should be allowed to die of hæmorrhage without saline transfusion having been performed. He was glad to hear that Dr. Horrocks withdrew the claim of originality for Dr. Wooldridge. He thought it was better to pass three ligatures under the vein as described in his own paper, and to fix the arm on a back-splint, which prevented suppuration. The rate of injection given by Dr. Horrocks was in his opinion much too rapid; he (Dr. Spencer) had seen venous pulsation from over-distension of the heart occur when the fluid was injected at about one-third the rate given by Dr. Horrocks. He would like to know on what physiologist's authority Dr. Horrocks advocated plain water for injection. He (Dr. Spencer) used normal salt solution. He would not himself use "a handful of salt to a jugful of water." [He showed some sterilised sealed glass tubes which he had had made; they contained two drachms of sodium chloride in solution, and could always be carried in the bag. They obviated the difficulty of weighing the salt in an emergency and prevented the introduction of dirt.] The disadvantage of the funnel used by Dr. Horrocks was that it required a skilled assistant to hold and fill it; with the bottle (which could be improvised as already described) this was unnecessary. He thought the fluid should be injected at about the temperature of the body; too cold water was known experimentally to produce fatal syncope, and probably a too hot solution would have a similar effect. He asked if Dr. Horrocks had made investigations as to the presence of hæmoglobinuria after the injection. Such observations had been made in some of his own cases with a negative result; but personally he had not found it necessary to inject more than three to four pints, and usually two were sufficient. There was always the difficulty in estimating the value of a remedial agent such as saline transfusion that the patient might have recovered without it. Information as to the frequency with which it was resorted to might be obtained from large maternities if all cases which died of hæmorrhage or with hæmorrhage were published, as in the paper to which he had alluded above.

The PRESIDENT agreed with Dr. Horrocks that the transfusion of blood was dangerous and ineffective. He thought that this

paper would be of great use in making more widely known the use of saline intra-venous injections. Its value as a means of saving the life of patients apparently dying from hæmorrhage had by this time been fully demonstrated; as to this, the question had passed the experimental stage. A case had been published by Mr. W. Coates ('Lancet,' 1882) in which water was injected into a vein, with a good result. The injection into human veins of blood from the lower animals, or of milk, as had been long ago proposed and practised, he thought should, in the light of the papers by Dr. Horrocks and others, be absolutely rejected. If the intra-venous injection of water or saline solution was to be of extended practical use, the method must be simple and easy; for cases requiring it often occurred when the doctor in attendance had no good assistance, had not all the instruments that could be wished by him, perhaps was inexperienced in the use of the remedy, and yet had to use it quickly if at all. If great nicety in every detail was essential to success, the remedy could not be used in such circumstances. Although careful measurement of the strength of the saline solution was desirable, he did not think it absolutely necessary. A teaspoonful of salt in a pint of water was quite near enough. Nor was it necessary to have the solution of the exact temperature of the body. He should not think it safe to inject very hot or very cold fluid, and he should think the injection of too hot water more dangerous than injecting it too cold; but so long as the temperature was between 90° and 100°, or even 80° and 100°, he did not think it mattered much what the precise heat of the water was. It was, no doubt, desirable that the water should be sterilised. But the chances were in his opinion millions to one against clean water from the tap containing germs which the leucocytes could not devour. Exact measurement of temperature, strength of solution, and quantity and sterilisation were good things, but if exactness were insisted on as always essential, the utility of this mode of treatment would be restricted.

Dr. Lewers said, reference had been made to the use of a drainage-tube after operation in cases of extra-uterine gestation where a large quantity of blood had been effused into the peritoneal cavity, and the opinion expressed that the use of the tube had in one case retarded convalescence. He had operated on a case where there was a very large accumulation of blood in the peritoneum. After very thorough washing, he closed the wound. About ten days after, the lower angle of the wound spontaneously reopened, and a considerable quantity of sero-purulent fluid escaped. Ultimately the patient made a complete recovery; but his own belief was that convalescence would have been much more rapid if a drainage-tube had been used in the first instance.

Dr. Hayes said they had learnt that a large quantity of water

—not necessarily saline—not, indeed, prepared in any manner except by moderate heating, could be injected in a rough-and-ready way into the veins of patients dangerously collapsed, not only without harm but apparently with benefit. But the evidence to his mind was far from conclusive of the point that this injection had saved their lives. He thought most of the cases were suffering from the effects of shock, and it was well known that recovery under such circumstances in desperate conditions took place without recourse to transfusion.

Dr. Horrocks, in reply, regretted that his spare time had not permitted him to refer to all those who had worked at the subject in the past. But, as a matter of fact, whatever had been done, it was abundantly clear that for some reason or another conviction had not been carried into the minds of the profession, inasmuch as the text-books, which reflected current opinions and practice, still recommended the transfusion of blood in cases of severe hæmorrhage. He believed this was due to the fact that the advocates of saline injection had made the fatal mistake, from fear or other reason, of injecting only a few ounces, and as the present paper was based upon an entirely different principle, he had not thought it necessary to refer to those who had worked at the subject in bygone years. At the same time he had referred to five comparatively recent writers of whom two were English. The objections which Dr. Herbert Spencer had raised to his (Dr. Horrocks's) transfusion apparatus, exhibited at this Society last year, were purely theoretical, and were found not to exist in practice. Moreover, it was evident that Dr. Spencer had been convinced of this by recommending a jug, clip, tube, and cannula. The advantage Dr. Horrocks claimed for his own apparatus was, as he had shown last year, that all that was necessary to be provided potentially with an apparatus that had been proved to be practically effective, was a cannula to fit into the median basilic or some similar sized vein. Hence he always carried a silver one in his purse, and it could be made aseptic by being placed in boiling water before use. He quite agreed with Dr. Spencer that when possible the operation should be performed with every precaution and in the best possible way, but when that was unattainable then one ought to do the best one could and not waste valuable time in trying to attain that which was really not essential. Hence, in the case where a handful of salt was thrown into a jugful of water the patient was as nearly dead as any patient he had ever seen, and yet she recovered. Moreover, he did not think the salt was necessary, and he should not hesitate to inject water alone if there was no salt obtainable. His authority for making this statement was that of the late Dr. Wooldridge, and he was glad to hear from the President that this had been actually carried out quite successfully at the London Hospital. At the same time he

preferred to put a little salt into the water, merely to make its specific gravity approximate to that of the blood, in order not to damage the corpuscles in any way by osmosis. At the same time he should not allow a patient to die for want of transfusion if there were no salt to be had. In regard to the temperature of the fluid he had always used a temperature of about 102·2° F., and he allowed the water to run through the apparatus until it came out warm. In this way it was about or a little over blood heat as it entered the circulation. With regard to the speed at which the fluid was injected he entirely disagreed with Dr. Spencer and the physiologists whom he quoted. As a matter of fact the circulation of the blood itself was so rapid, travelling as it did from the left ventricle round through the systemic system and pulmonary system back again to the left ventricle in considerably less than a minute, that even allowing for the probable slowing of the circulation in these desperate cases, he did not think to inject a pint in four minutes was too fast. In fact, considering this had been done with impunity it could not be considered a matter of opinion, and it was important to restore the flagging, underfilled heart as speedily as possible. The fluid was measured in a pint glass measure in the hospital cases, it was measured in the rest roughly with a pint jug. He had never noticed pulsations in the veins nor had he looked for hæmoglobinuria, but in none of the cases had the urine been red. He had never tried three ligatures round the vein, as two were found to be all that were required. He had begun working at this subject with the late Dr. Wooldridge in 1885, and the first case published was the outcome of this work, by Mr. Lane in 1891. It was after the publication of this case that he heard that Dr. Spencer had been working at the same subject independently. He was sorry Dr. Wooldridge was no longer alive, as he would have been able to throw considerable light on the subject. He did not quite see what Dr. Spencer meant by recommending the publication of those cases of hæmorrhage in which transfusion had not been tried. As a matter of fact in the Guy's Lying-in Charity these cases had been published for many years by Dr. Braxton Hicks, Dr. Galabin, and himself. If Dr. Spencer would refer to the 'Guy's Hospital Reports,' he would find all these cases given. Of course it was a difficult matter to say that a patient would have died but for the transfusion, but he thought that when there was no pulse at the wrist, the likelihood of a fatal issue from cardiac failure was considerable. At the same time it was obvious that unless the bleeding vessels could be secured, the injection would not be so satisfactory. Hence the comparative failure in serious post-partum hæmorrhage. Dr. Hayes was not prepared altogether to believe that the cases related had been saved by transfusion, but had he himself seen

those cases he would have probably thought, as did the medical attendants, that they were quite beyond all hope. In Case 1, Drs. Stokes and Burroughs thought the patient was actually dead, and they watched with vivid interest the effect of rapid and steady injection of fluid. The cases that were taken to the Hospital had no doubt to run the risk of the delay and the inconvenience of removal, but in one case there was scarlet fever in the house, in another the surroundings were equally bad, and in the case that died on arrival the husband refused to allow the operation until his mother-in-law's consent had been obtained No doubt in such severe cases it would be better to operate at once without waiting for removal to the hospital, but at the same time the question of surroundings, convenience, and help, had to be considered. He considered that the question of shock was important. So far as he knew, there was less likelihood of injection of fluid doing permanent good where the collapse was due to shock rather than to hæmorrhage. In reply to Dr. Lewers and Dr. Heywood Smith, he said that a drainage-tube had been used because it was his practice to use a drainage-tube when it was necessary to flush the peritoneal cavity with water, and where there were adhesions to break down. In reply to the last speaker he said the size of the india-rubber tubing had no importance whatever so long as its lumen was larger than the narrowest part of the apparatus, which was the nozzle of the cannula; because, by the law of hydrostatic pressure, the rate of flow would depend upon the weight of a column of water having this, the narrowest part, as its sectional area, and having for its height the vertical distance between the end of the nozzle and the surface of the water in the funnel. In conclusion, he wished to emphasise the importance of quantity of fluid to be injected. A few ounces were of no avail. In the most serious cases six pints were needed. Again, he thought that at least some of those cases of operation where much blood was lost, and which died some hours afterwards, would be saved by a timely intra-venous injection of saline fluid; that is, if at the end of an operation a patient were found to be dangerously blanched, even though not pulseless at the wrist, he advocated an intra-venous injection of fluid, varying from two to five pints according to the case; in this way secondary syncope might be avoided.

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Presented by

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CUMMIN (William). The Proofs of Infanticide considered, including Hunter's Tract on Child-murder. *woodcuts*, 8vo. Lond. 1836 — Sir Wm. O Priestley.

DAVENTER (Henry à). The Art of Midwifery improved, made English. *plates*, 8vo. Lond. 1716 — Ditto.

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FOR

VOLS. XVI TO XXXII.

1874–1890.

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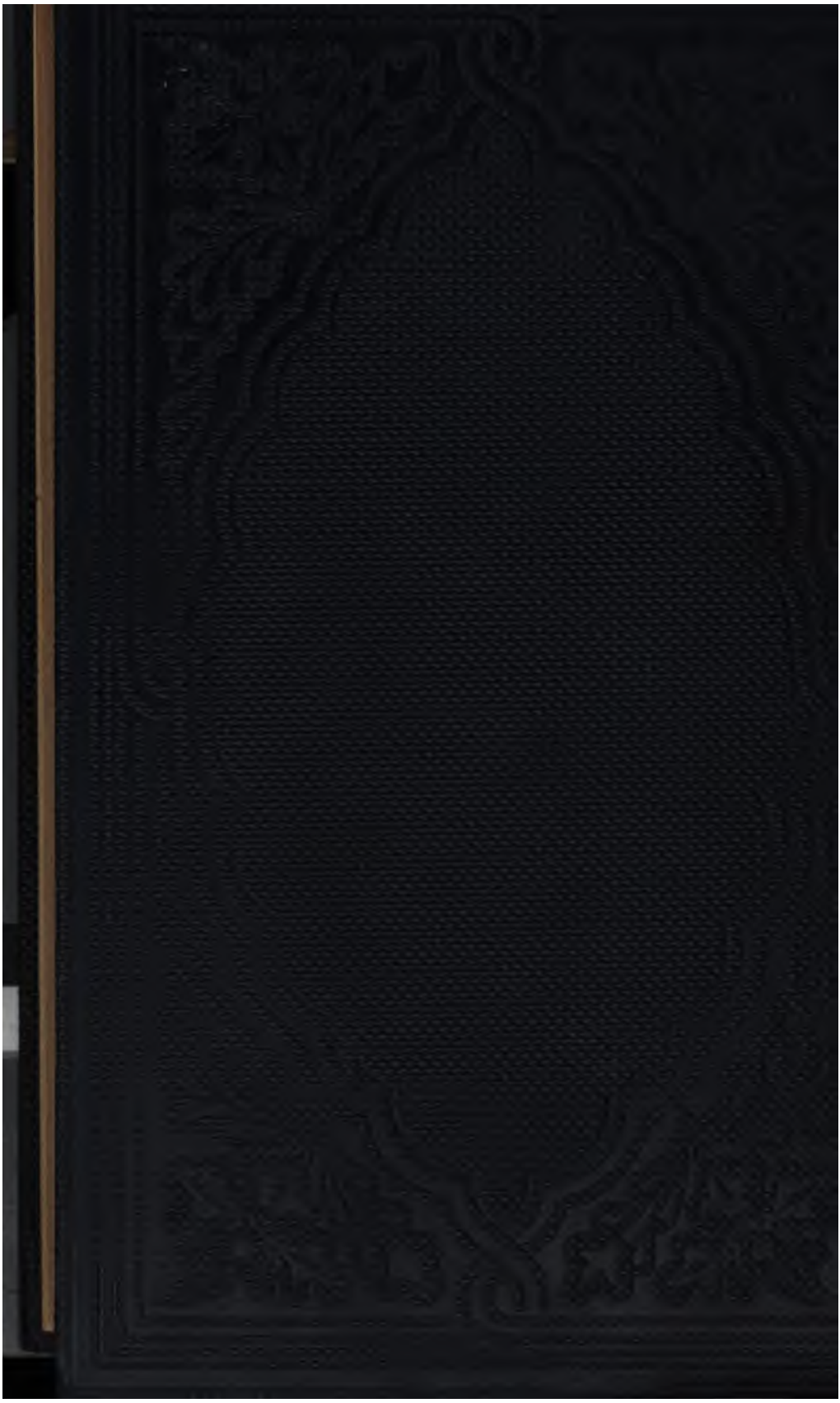
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